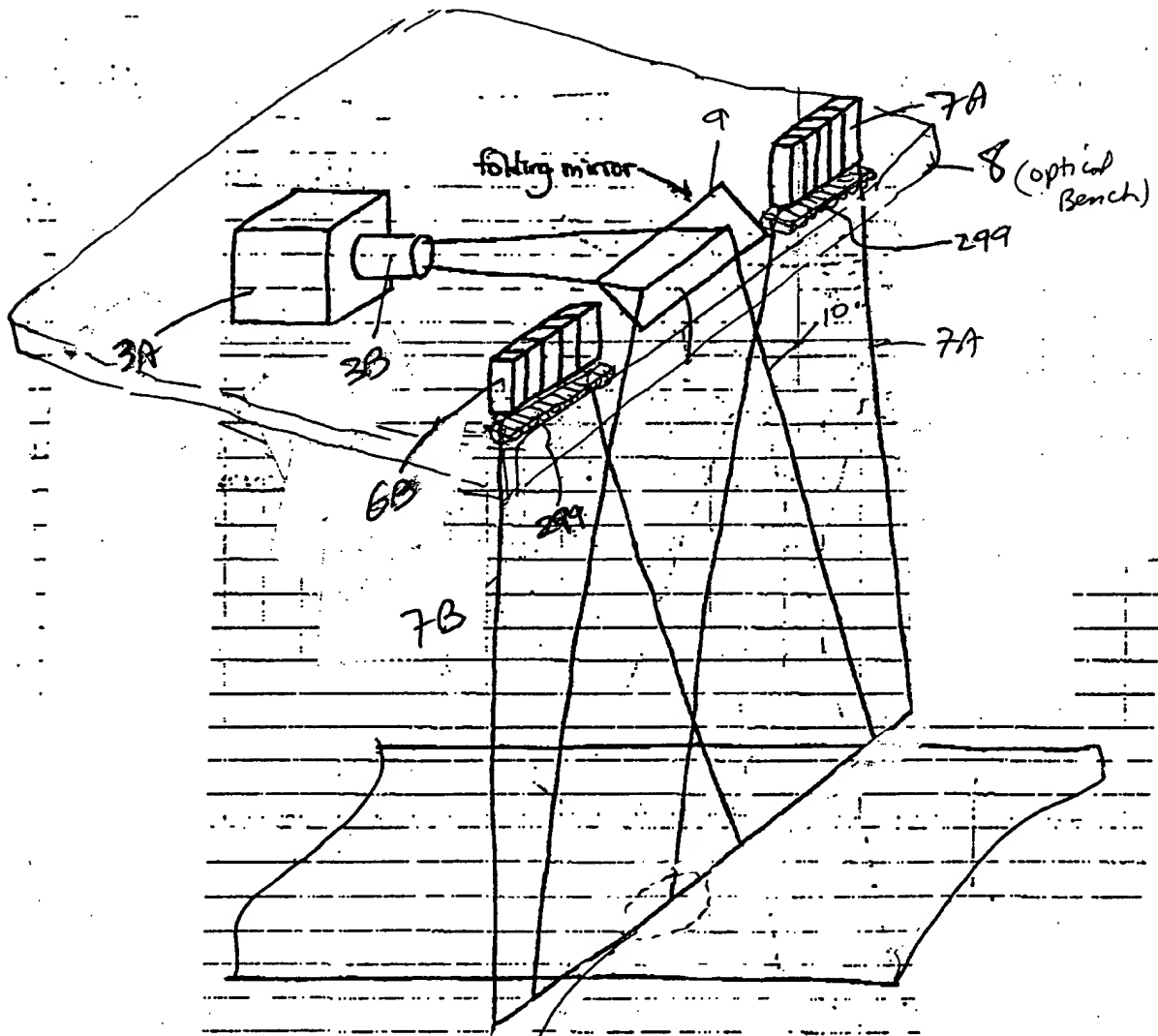


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1A

FIG. 1B1

Magnified field of view of
CCD sensor element on
object
width of projected
Planer laser illumination
beam on
object

FIG. 1B3

00000555-1140

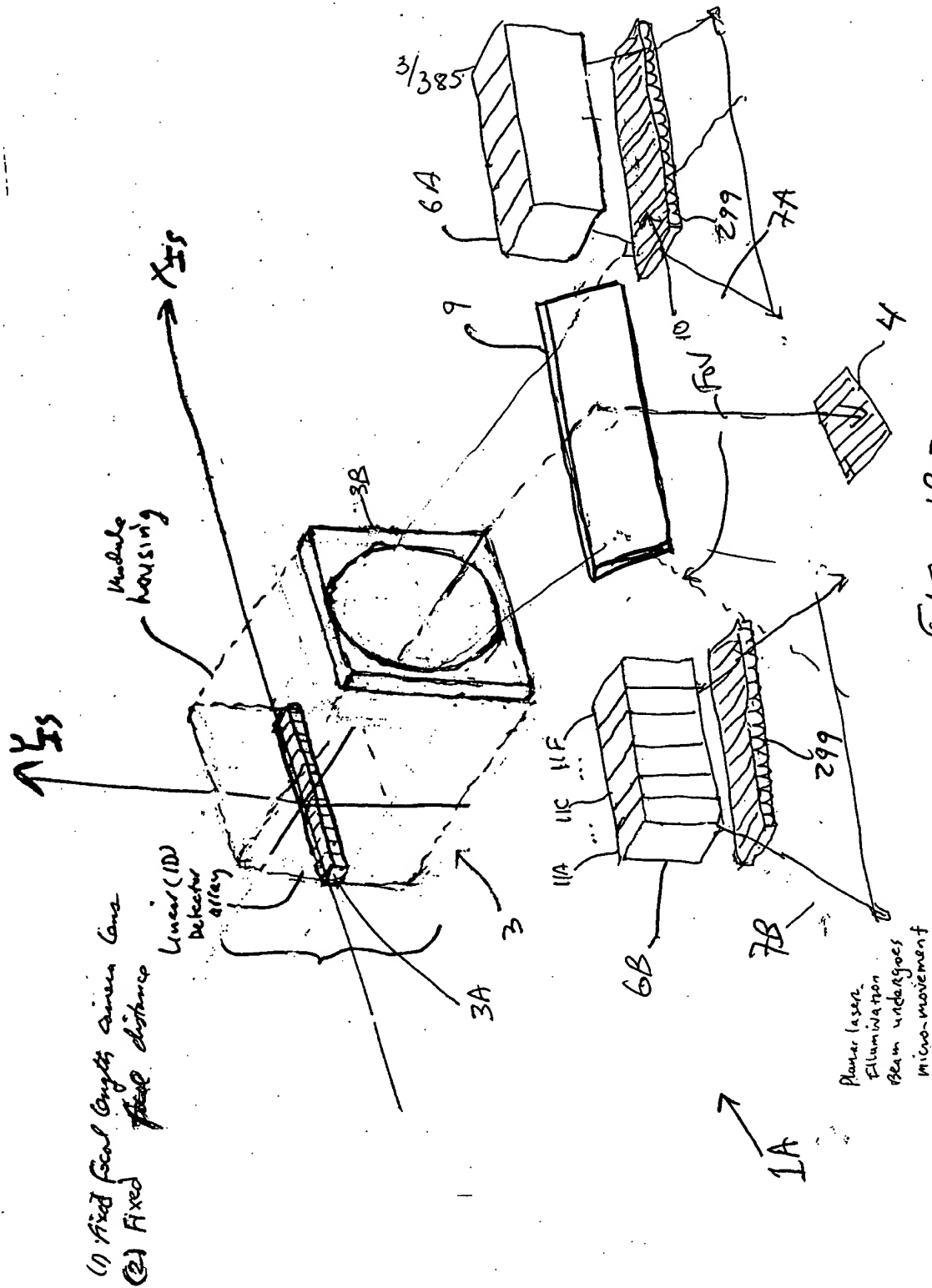
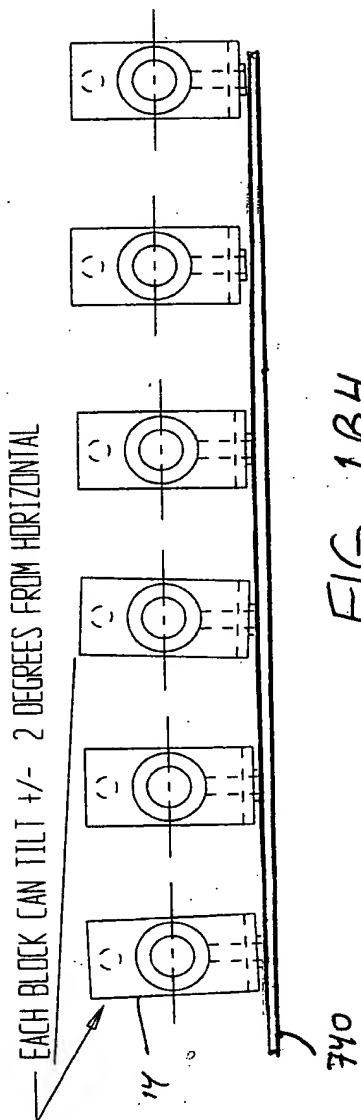
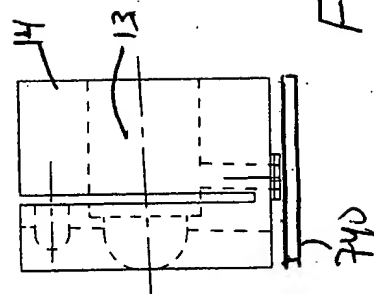


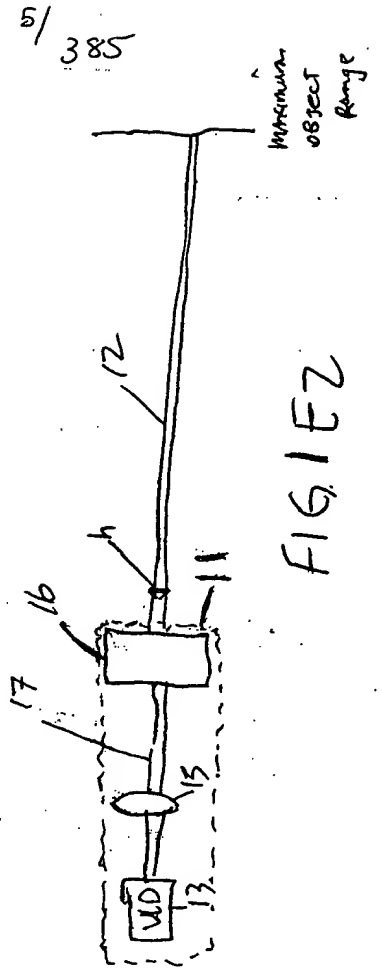
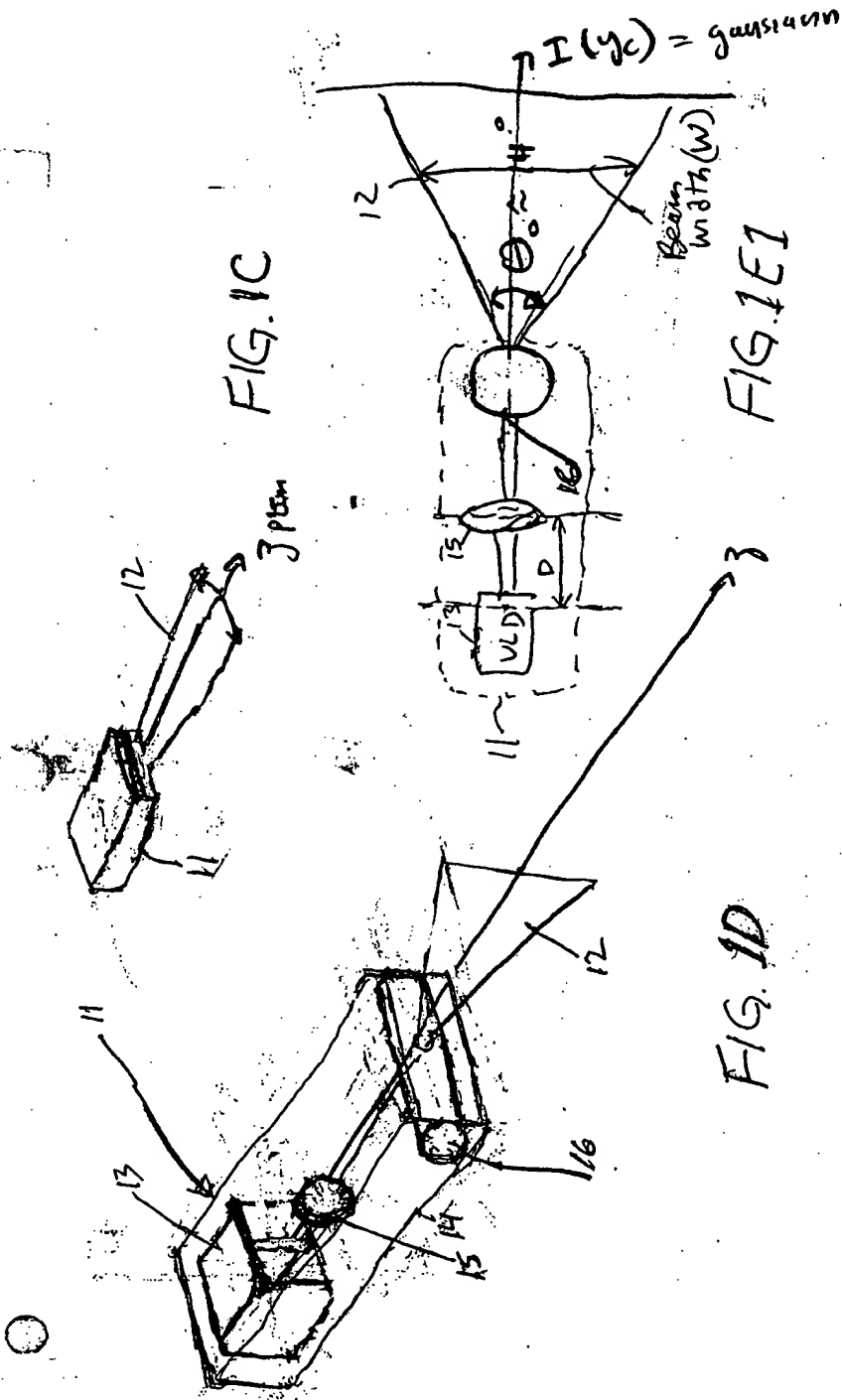
FIG. 1B2

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VLD BLOCK CAN PITCH FORWARD FOR ALIGNMENT WITH OTHER VLD BEAMS





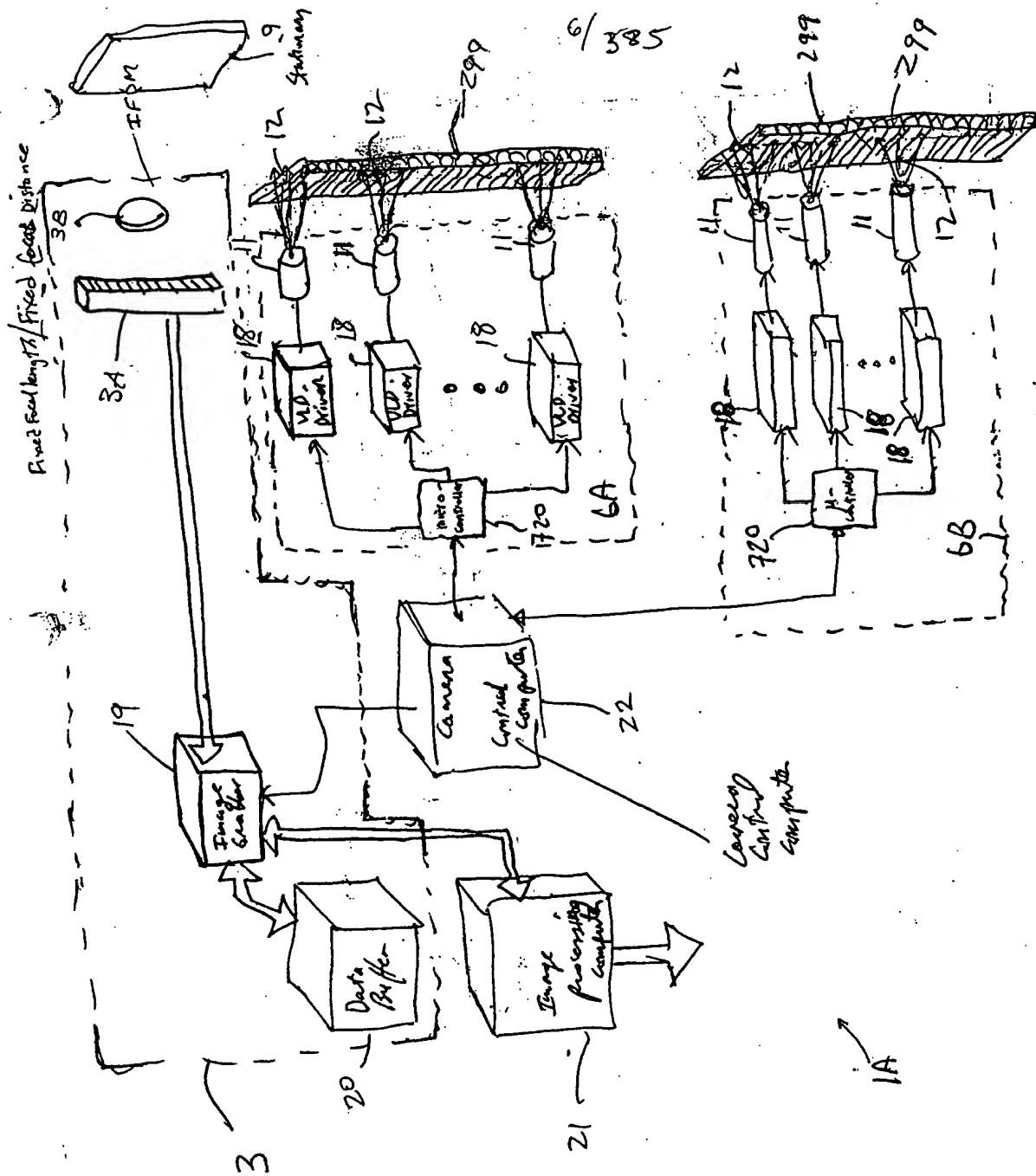
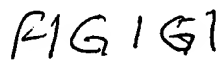


FIG. 1F



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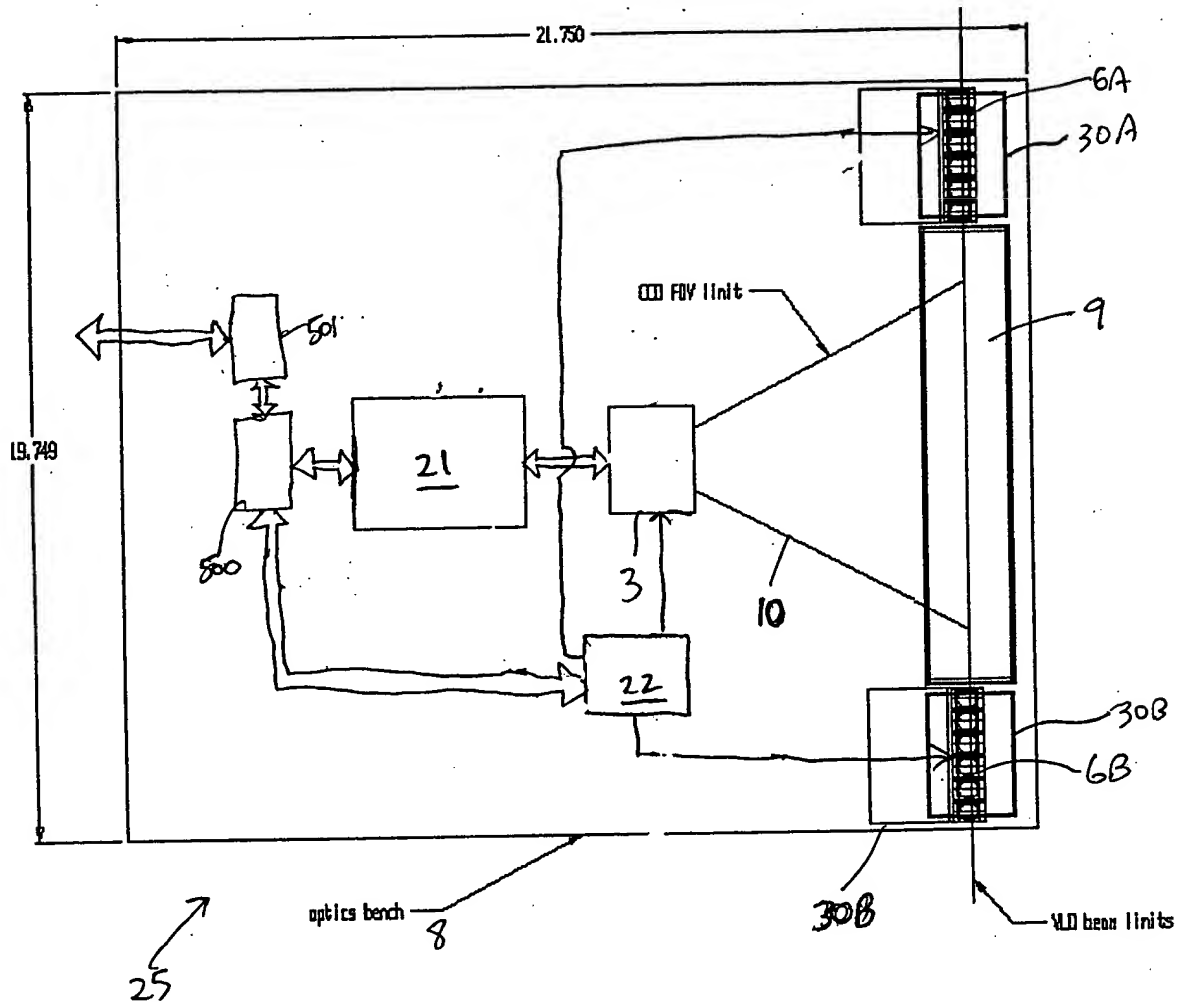


FIG. 1G2

[illegible]

FIG 1G3

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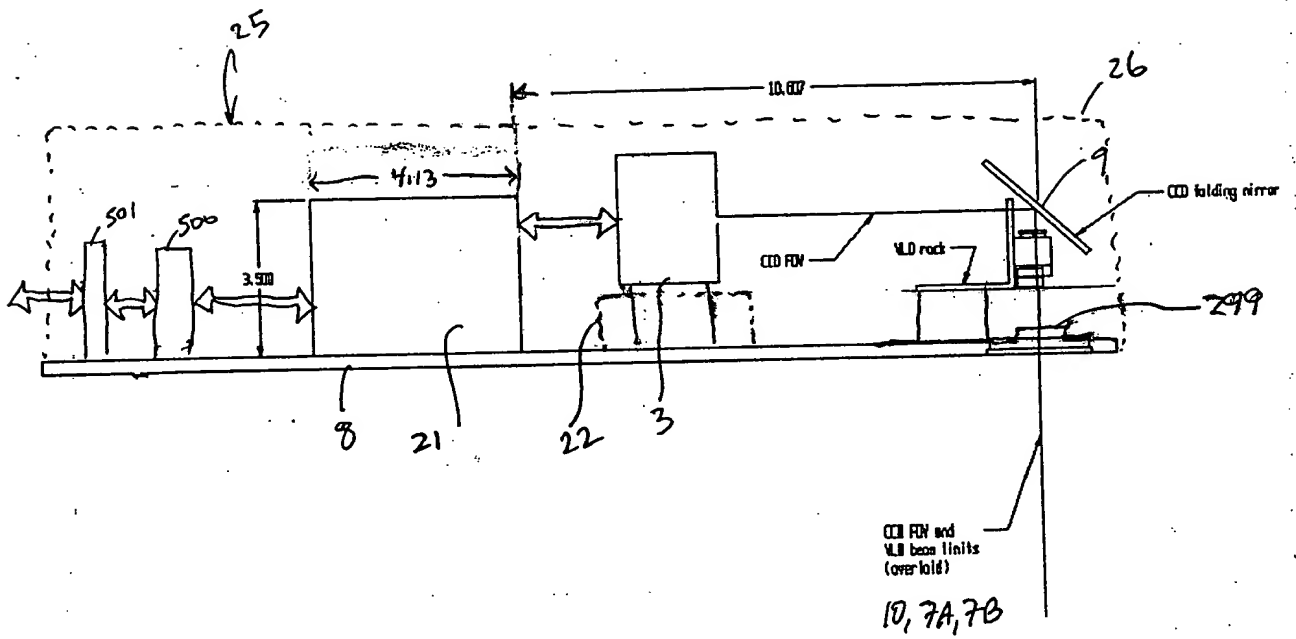
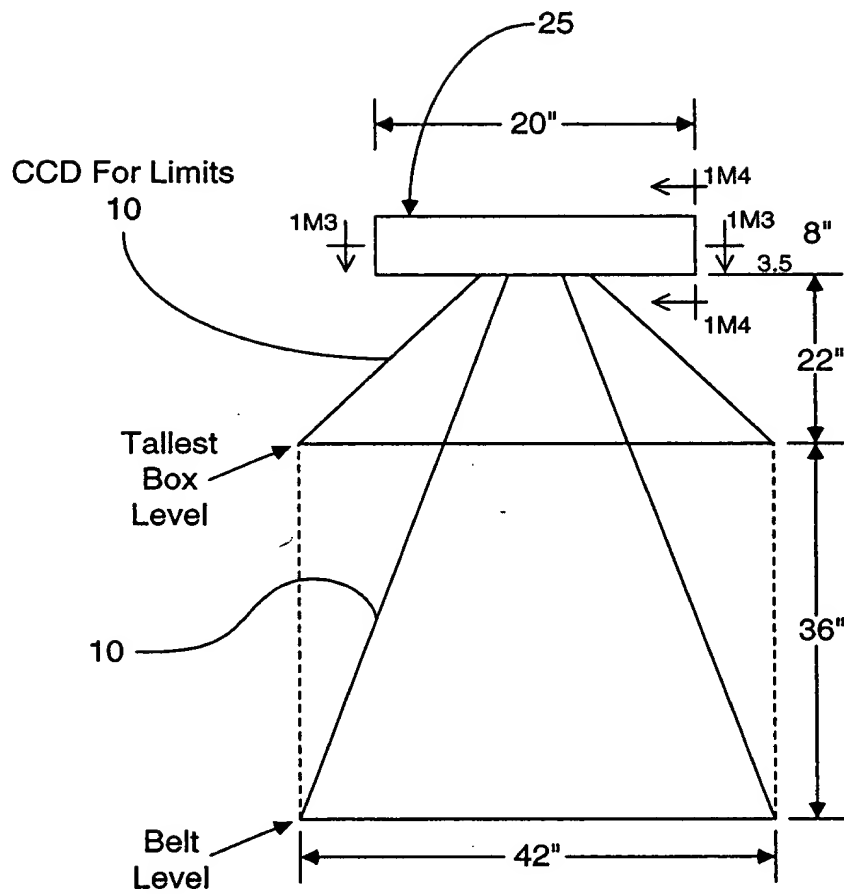


FIG. 164

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* Fixed Field Of Field

FIG. 1G5

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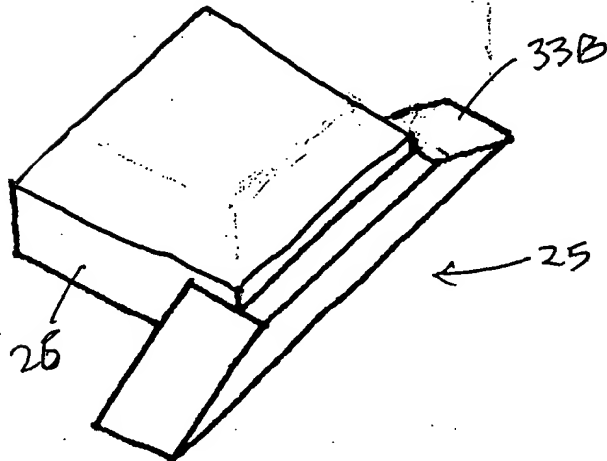
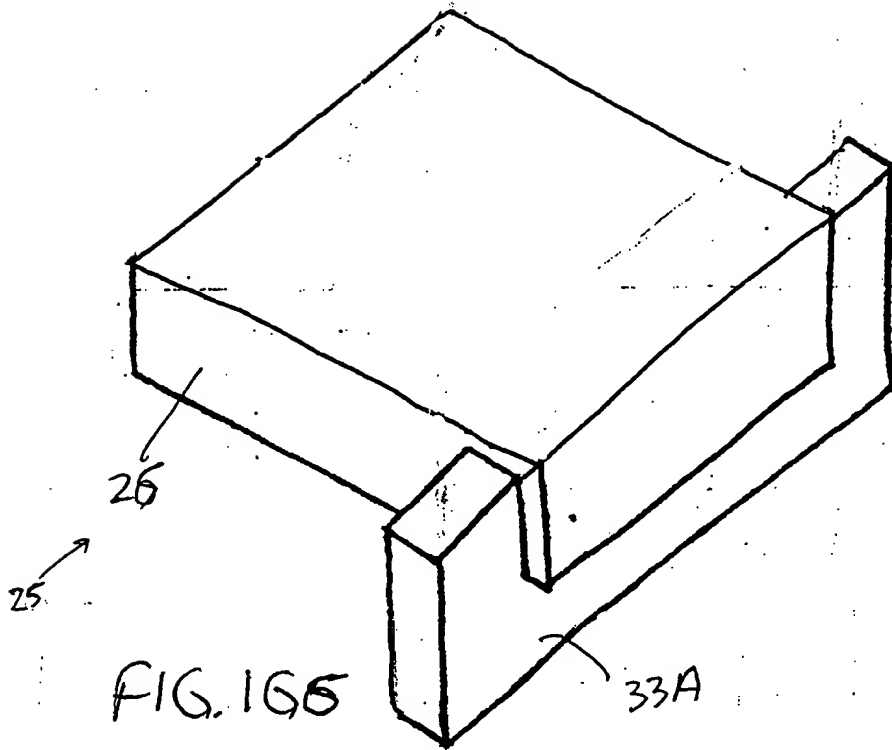
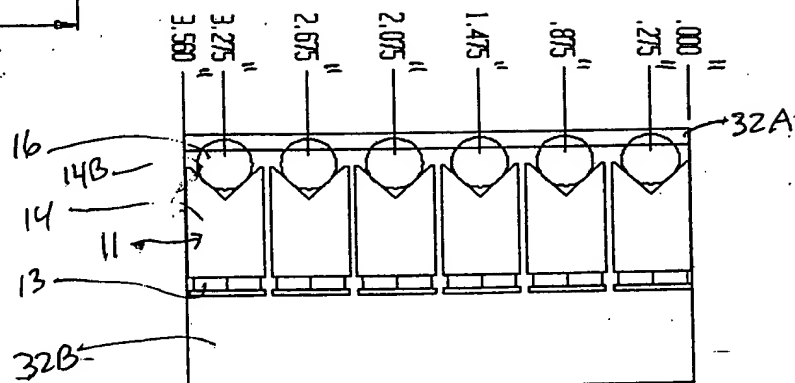
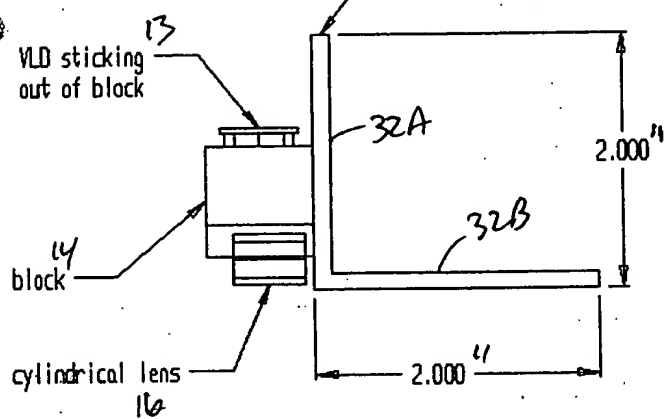


FIG. 1G 8 is a perspective view of a multi-compartment container. The container has a rectangular body with a series of vertical dividers creating multiple compartments. The front edge of the container is finished with a scalloped or wavy pattern. A label '32A' is positioned above the container, and '13/385' is written in the upper right corner. A line points from '6A, 6B' to the top edge of the container. At the bottom, a line points from '14' to the base, and another line points from '16' to the front edge. The text 'L bracket' is written near the bottom center, and '14B' is written at the bottom right. The figure is labeled 'FIG. 1G 8' in the bottom right corner.



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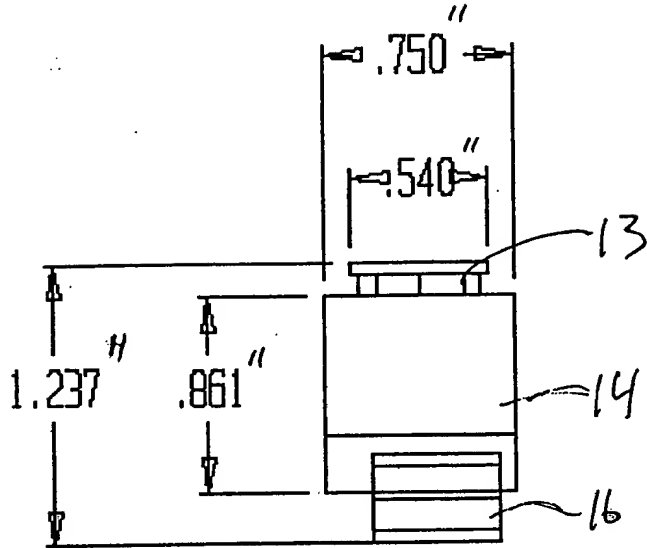


FIG. 1G11

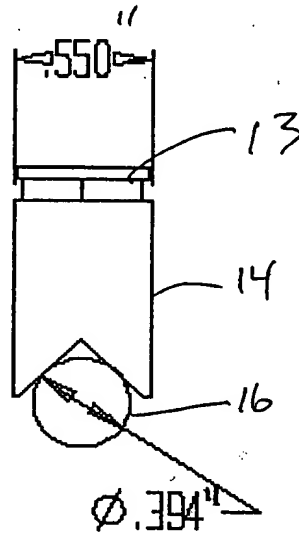
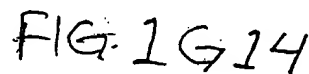
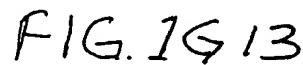


FIG. 1G12

00000000 112101

	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100															
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100



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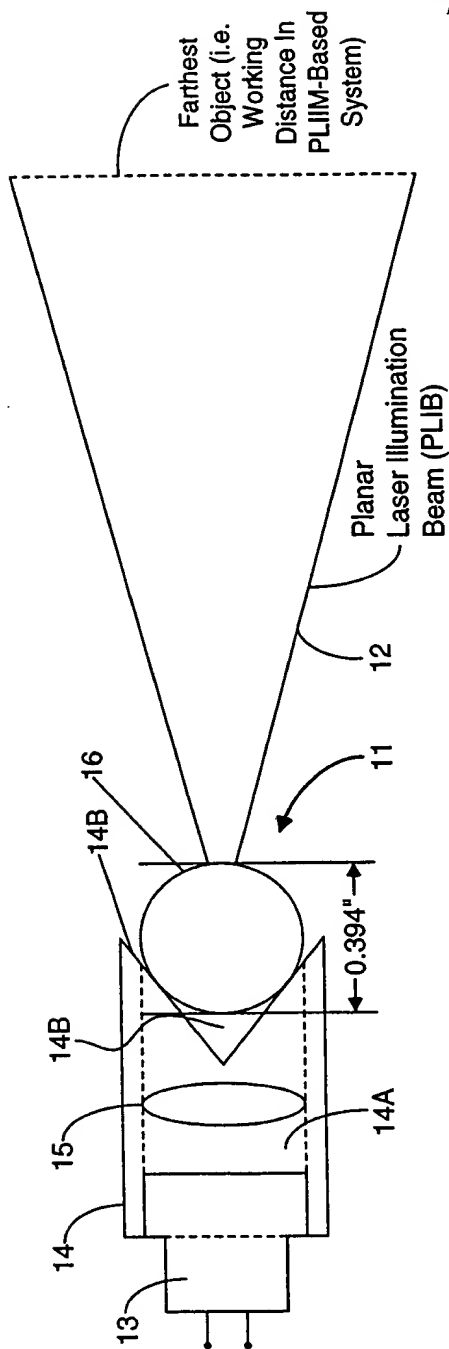


FIG. 1G15A

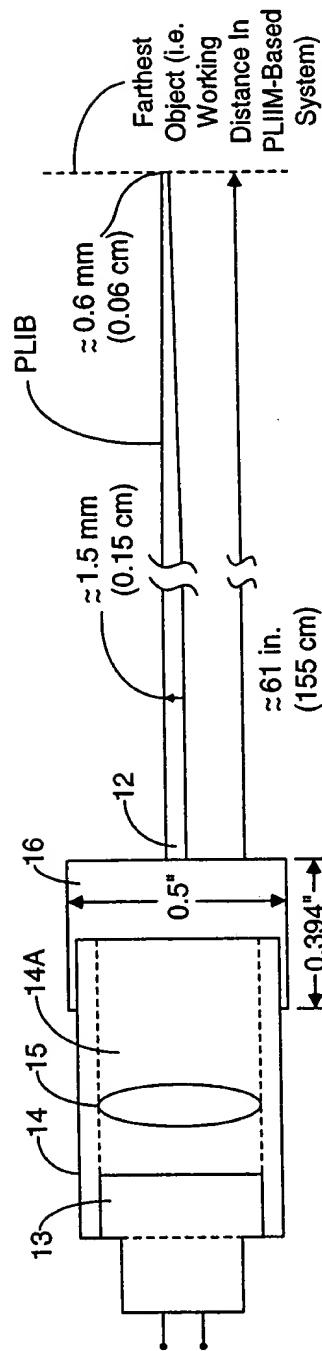


FIG. 1G15B

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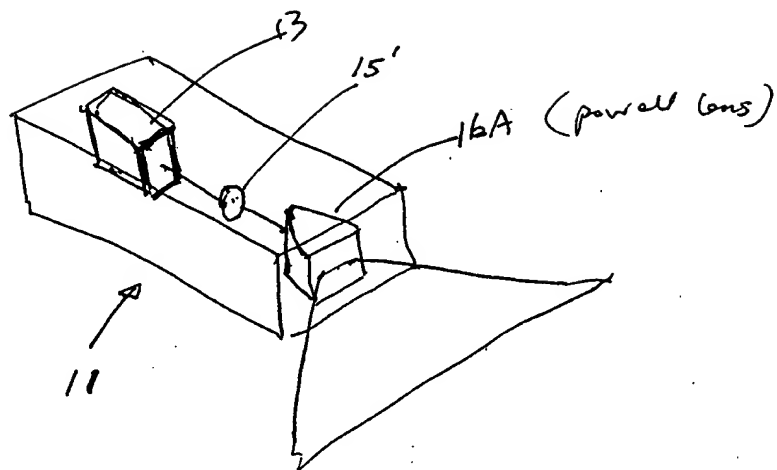


FIG. 1G.16A

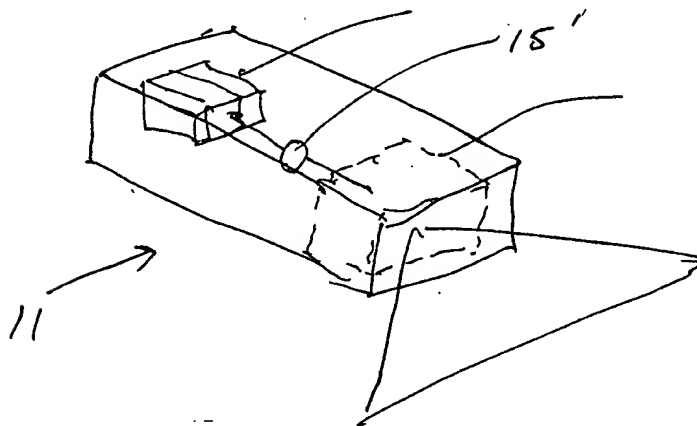


FIG. 1G.16B

• PLIM w/
powell lens

09990585-113101

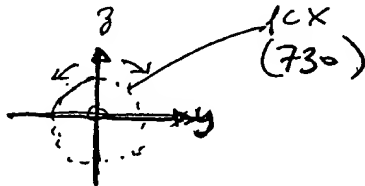
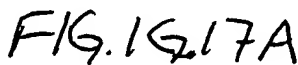
[illegible]

FIG. 1617C

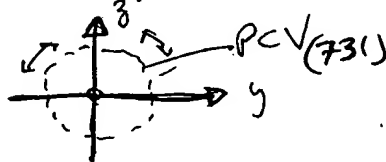


FIG. 1617D



FIG. 1617E

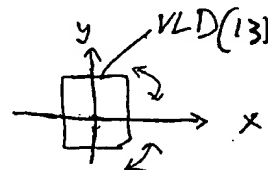


FIG. 16. 17F

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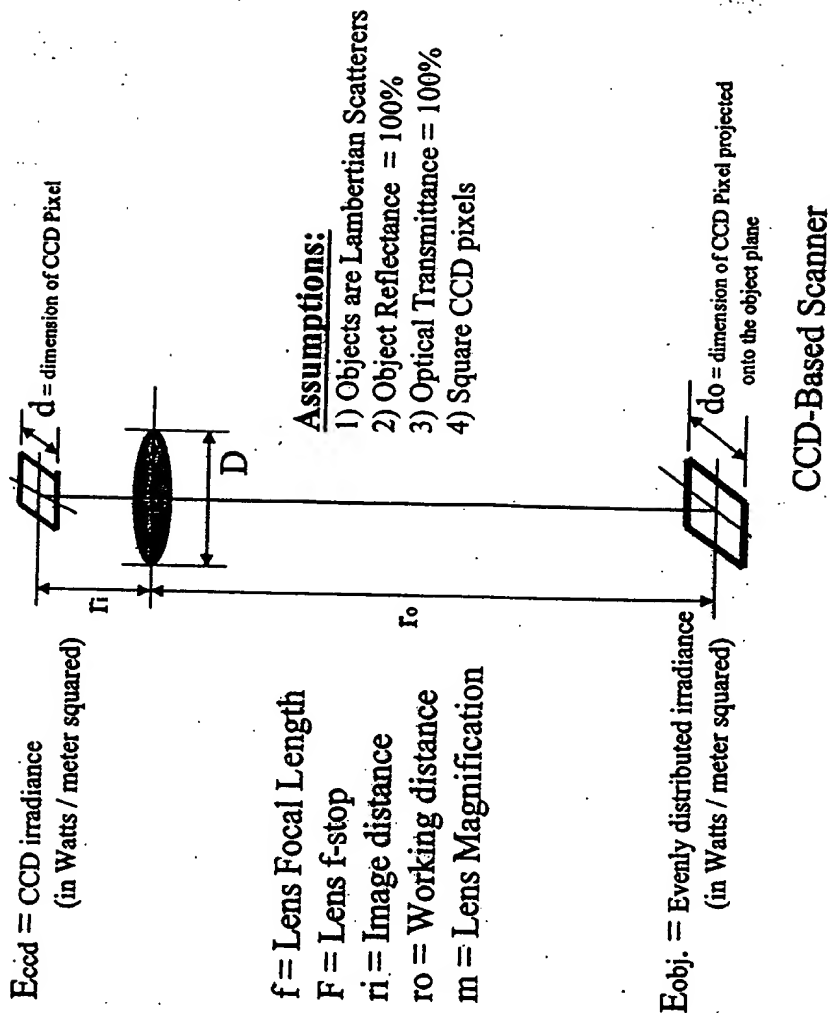


FIG. 1H6

FIRST GENERALIZED METHOD
OF REDUCING SPECKLE-NOISE
PATTERNS AT IMAGE
DETECTION ARRAY OF THE
SPM SYSTEM (3)

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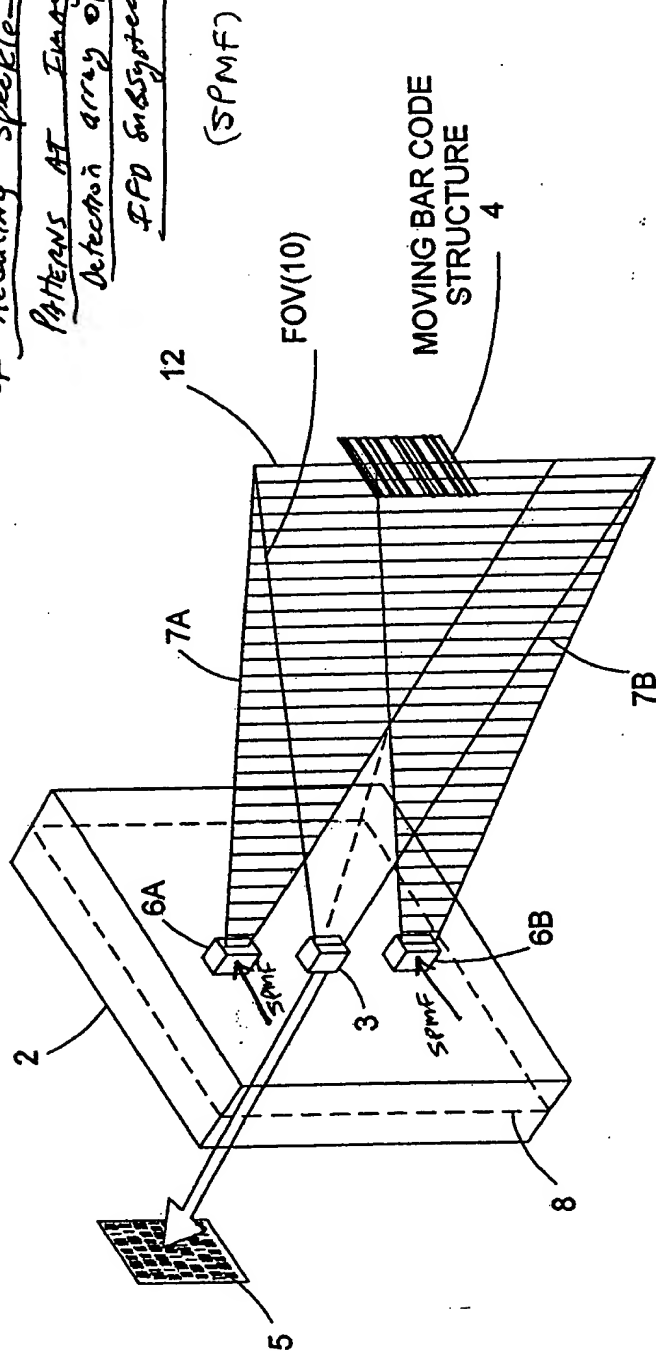
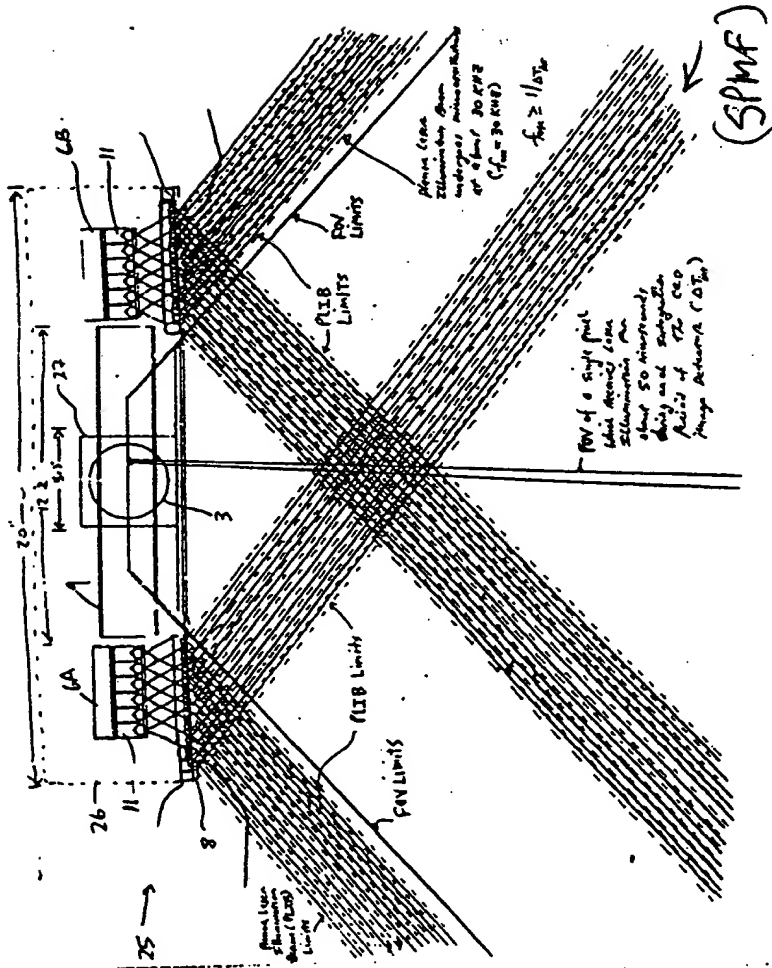


FIG. 1I1

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Prior to object illumination

FIG. 11A

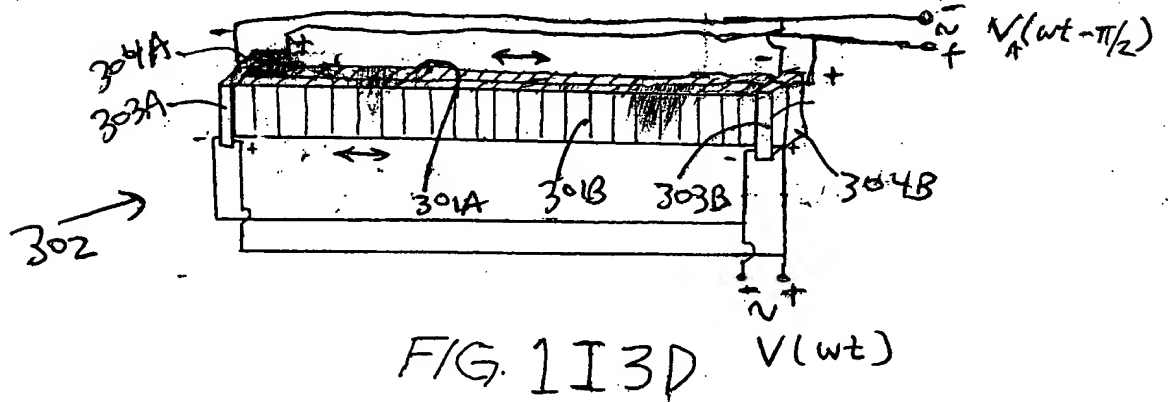
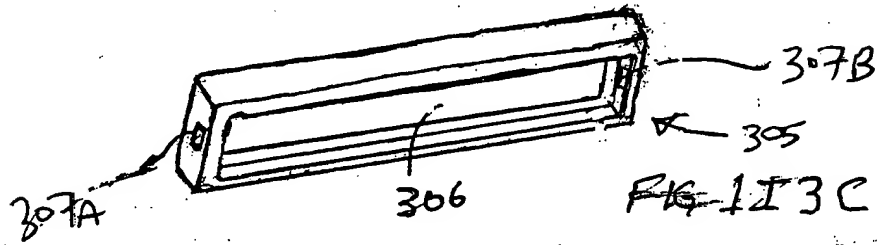
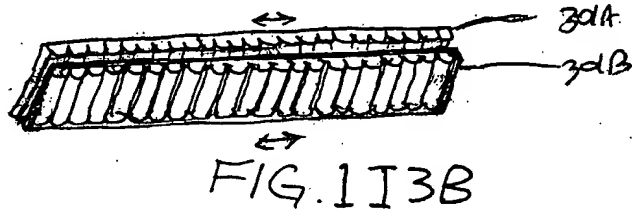
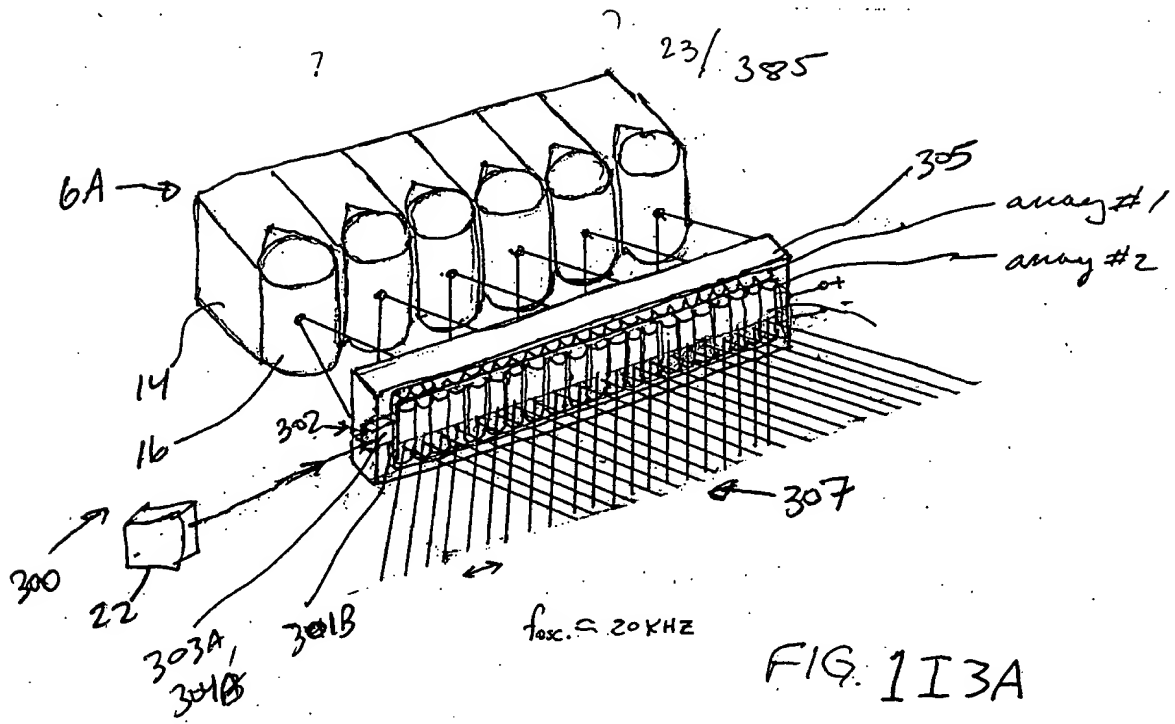
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The First Generalized Speckle-Noise Pattern Reduction Method
Of The Present Invention

Prior to illumination of the target with the planar laser illumination beam (PLIB), modulate the spatial phase of the transmitted PLIB along the planar extent thereof according to a spatial phase modulation function (SPMF) so as to produce numerous substantially different time-varying speckle-noise patterns at the image detection array of the IFD Subsystem during the photo-integration time period thereof.

Temporally average the numerous substantially different time-varying speckle-noise patterns produced at the image detection array in the IFD Subsystem during the photo-integration time period thereof, so as to thereby reduce the power of the speckle-noise pattern observed at the image detection array.

FIG. 1I2B



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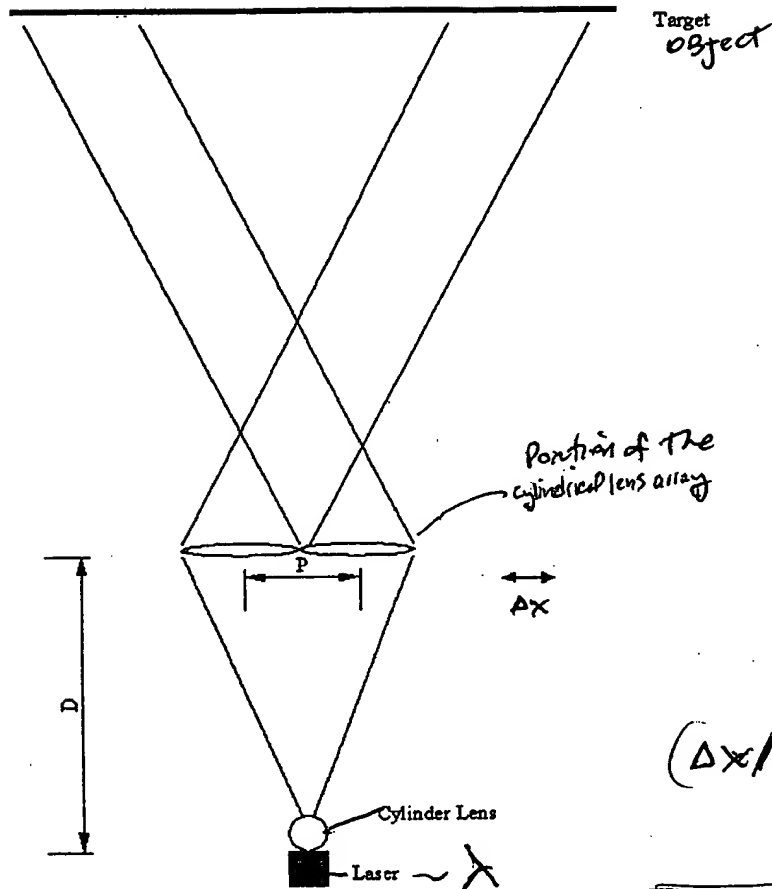
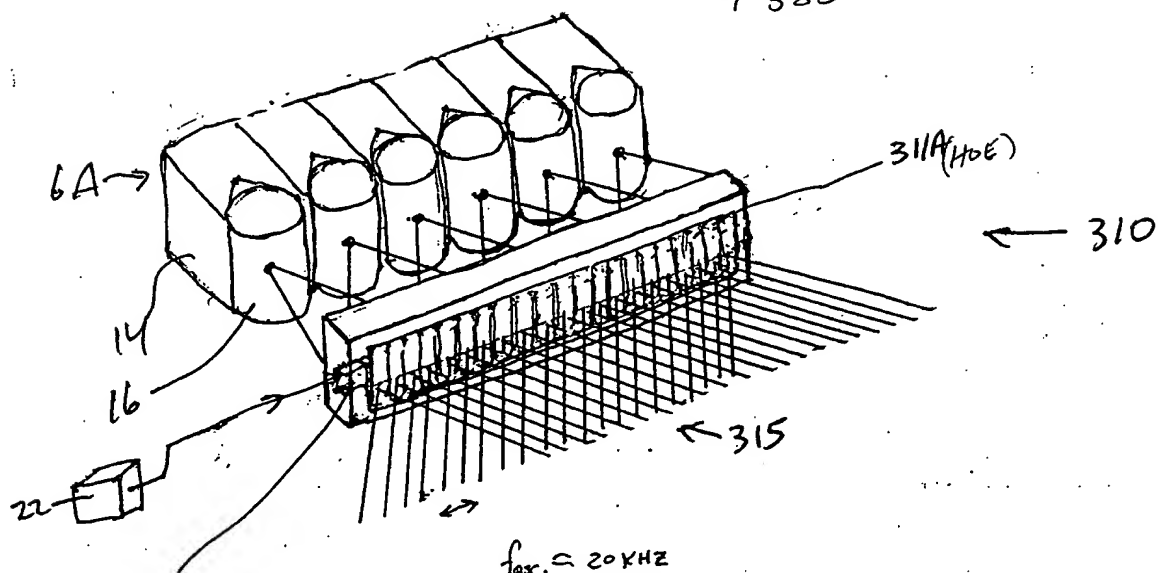
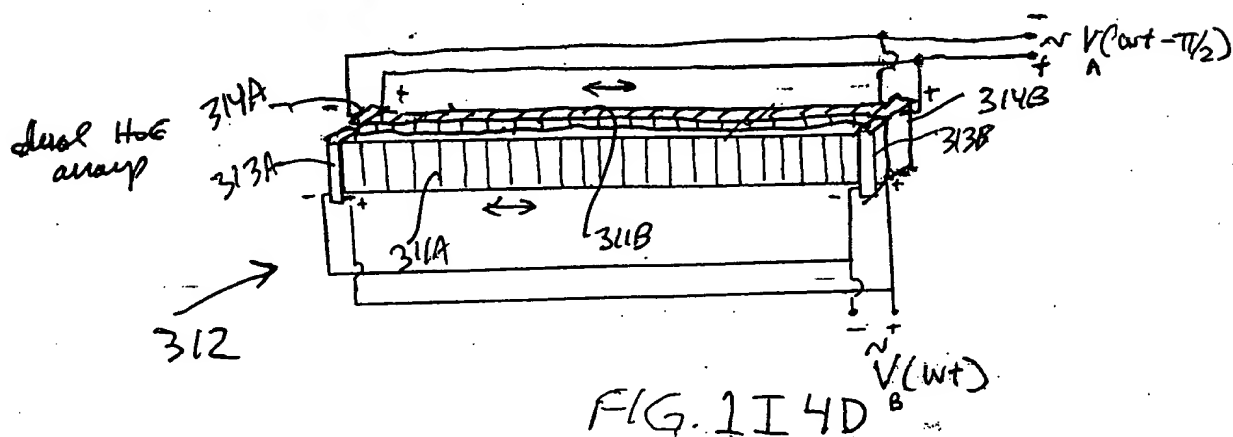
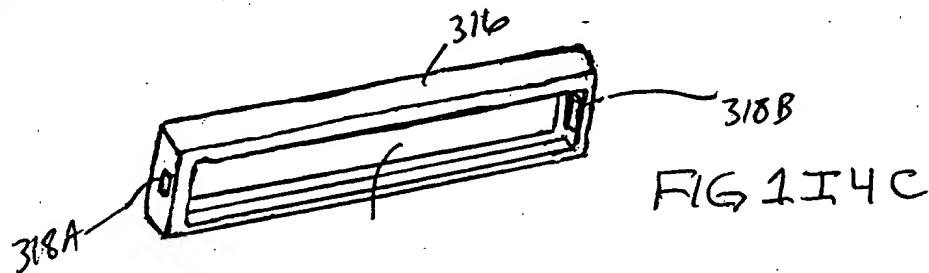
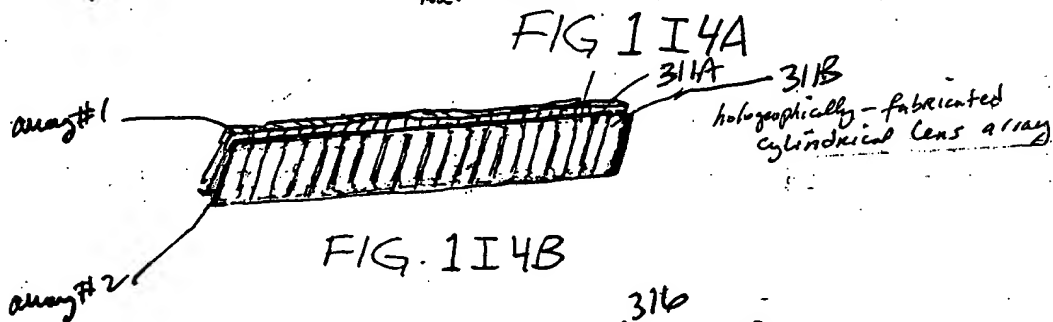


Figure 1

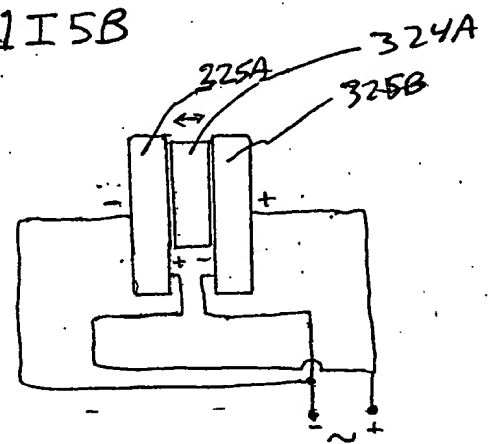
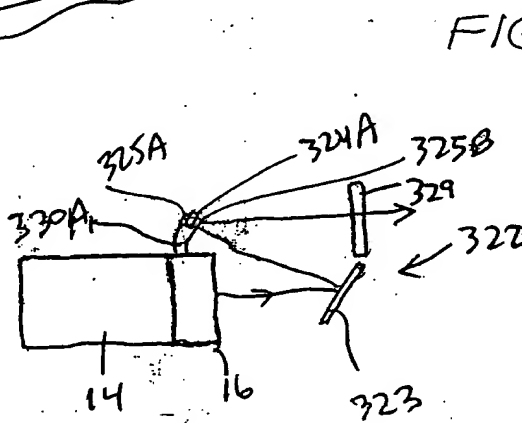
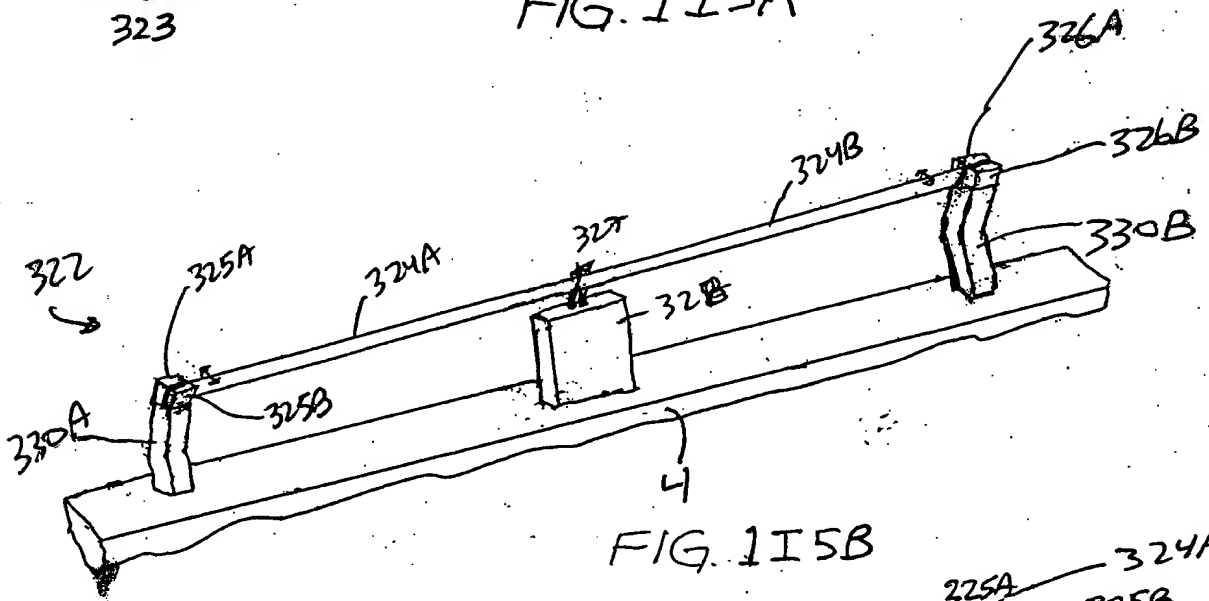
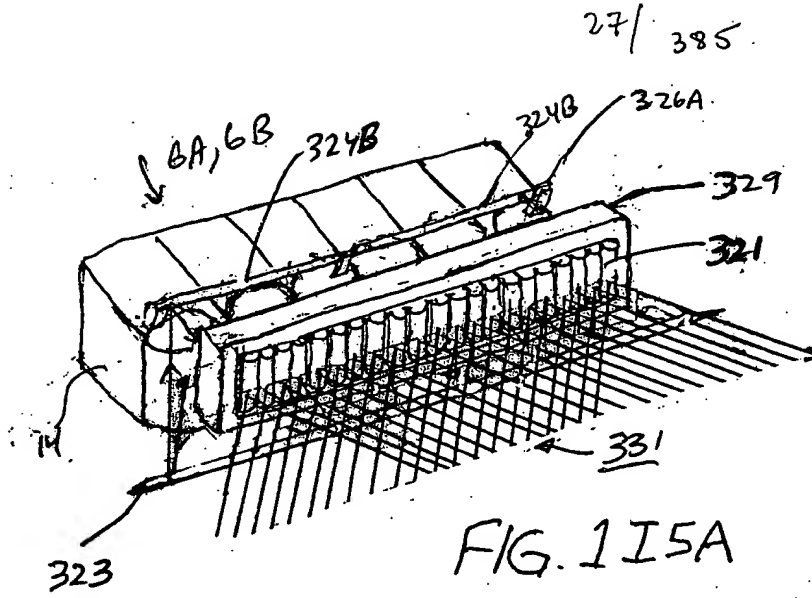
$$(\Delta x / D) P = \lambda$$

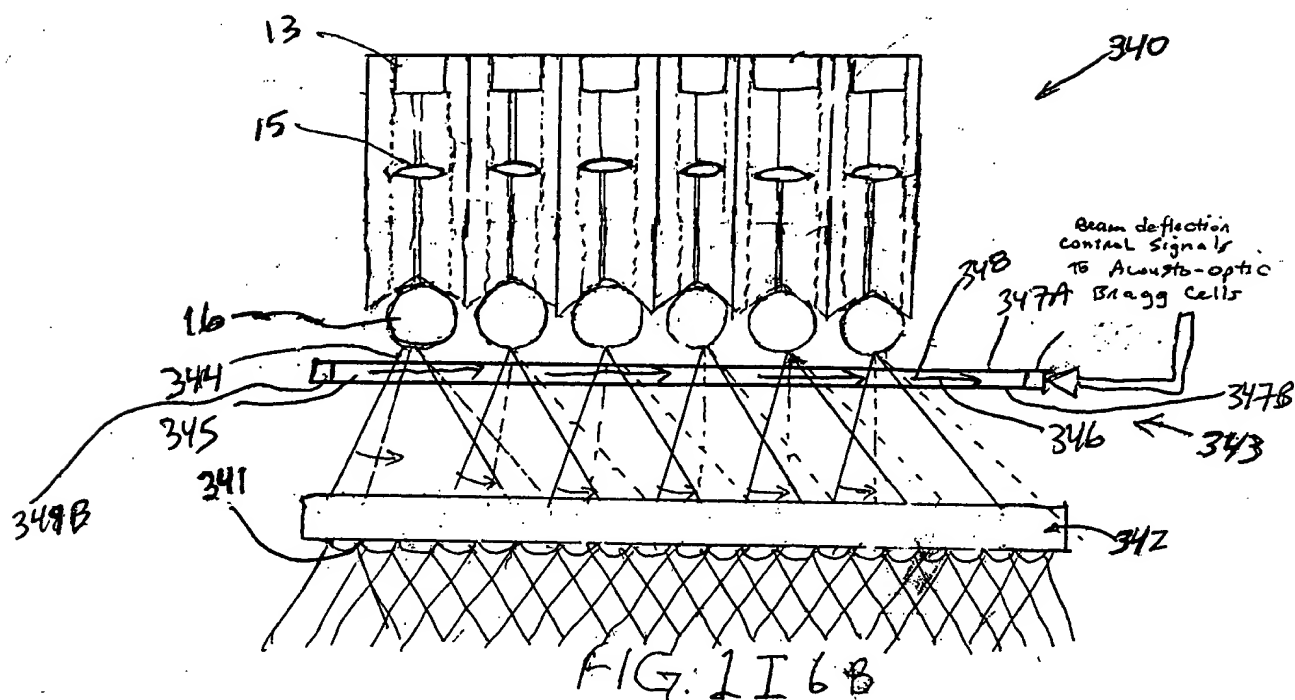
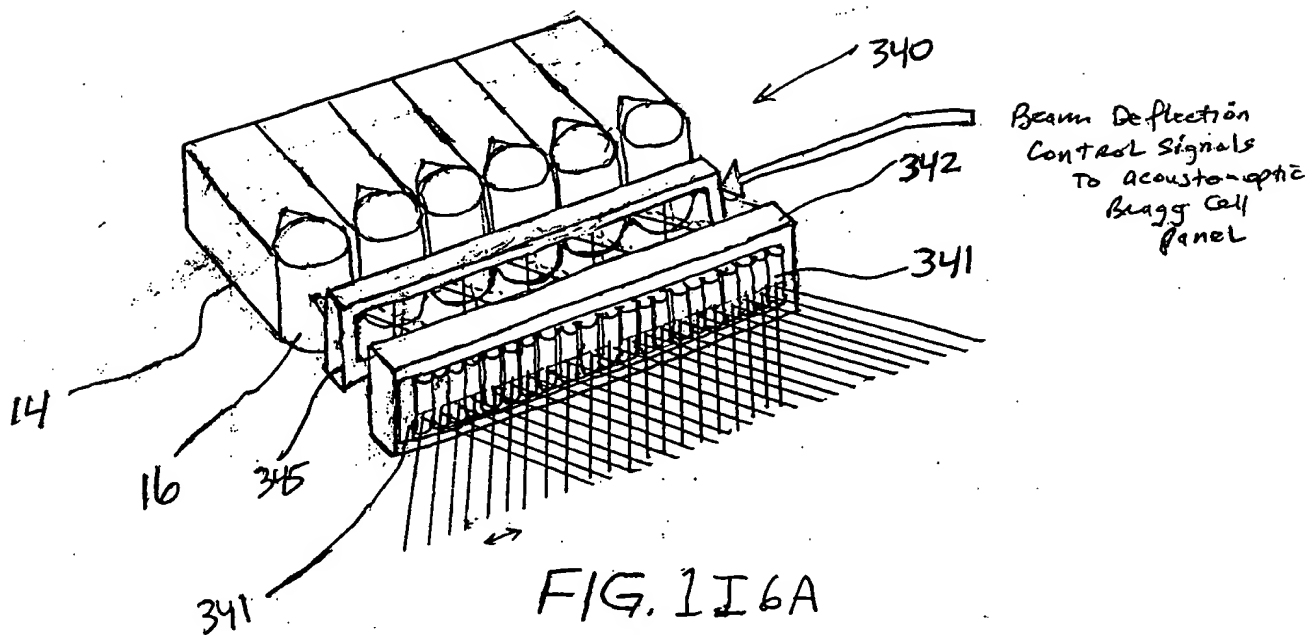
$$\Delta x \geq \frac{\lambda \cdot D}{P}$$

FIG. 1I3E

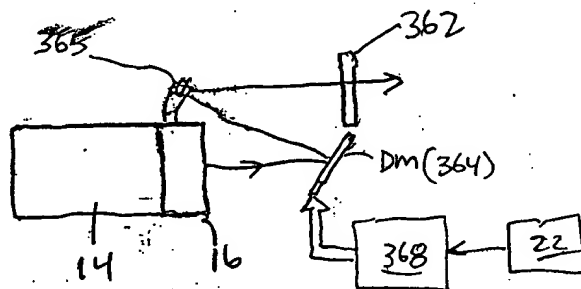
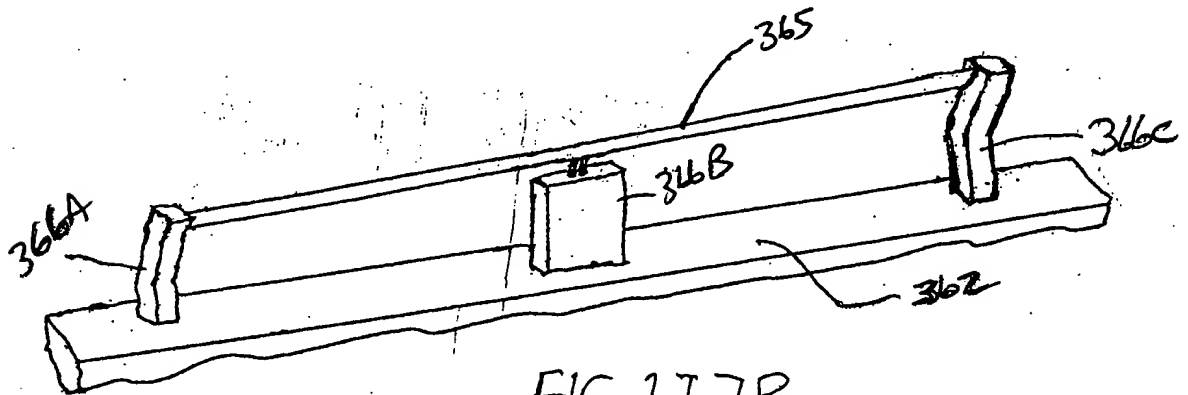
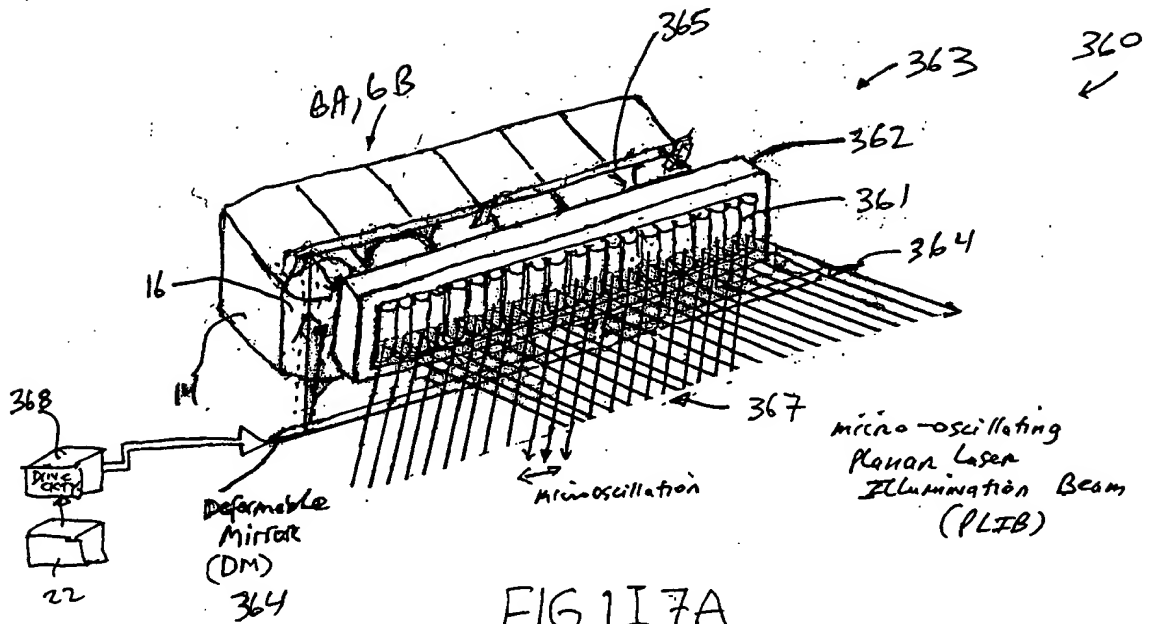

$$f_{osc.} = 20 \text{ KHz}$$


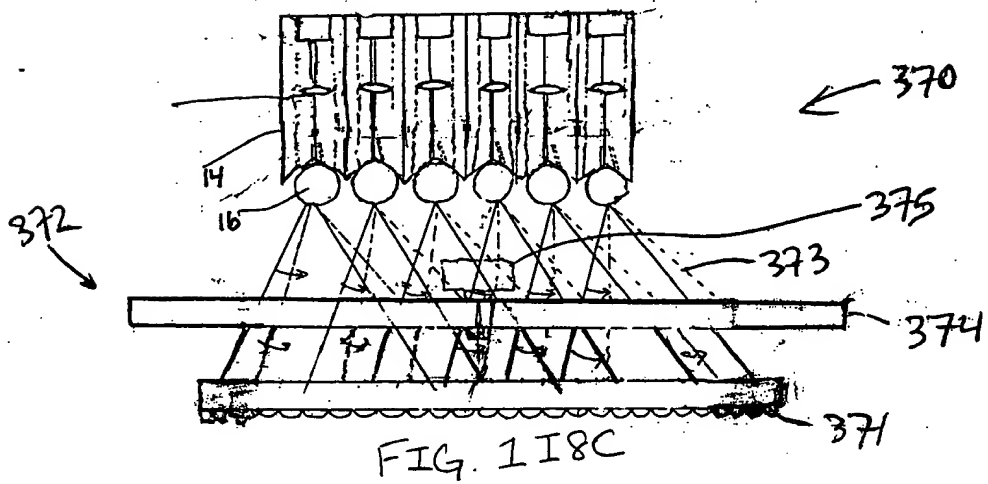
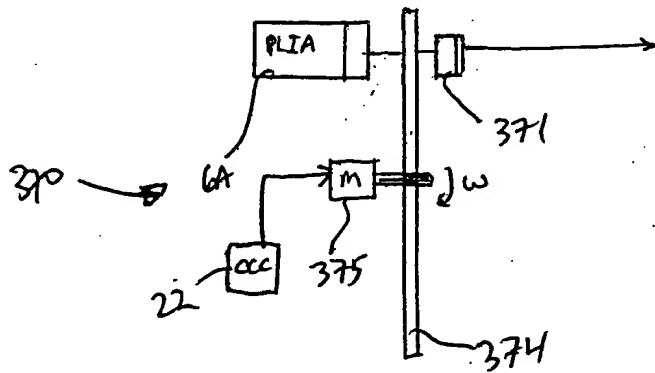
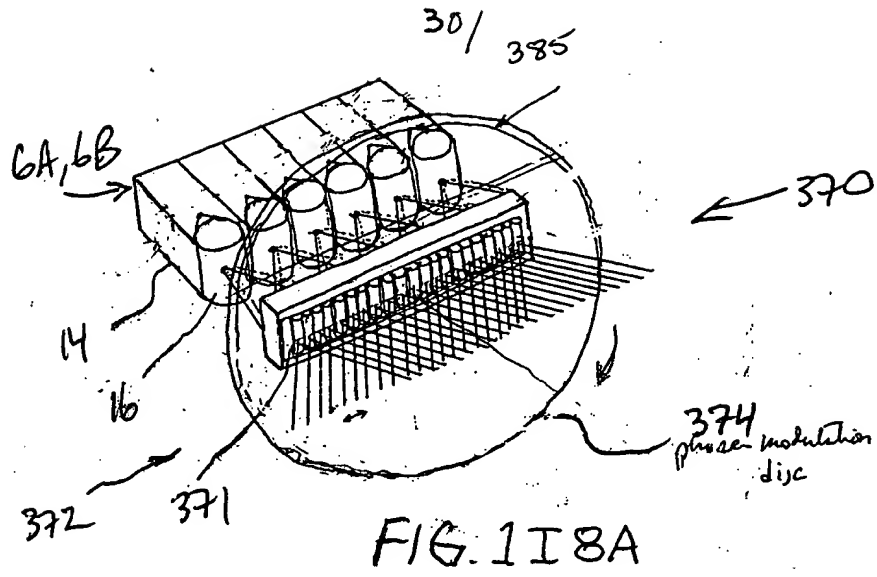
00900585 112101
TOTAL 58506600





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[illegible]

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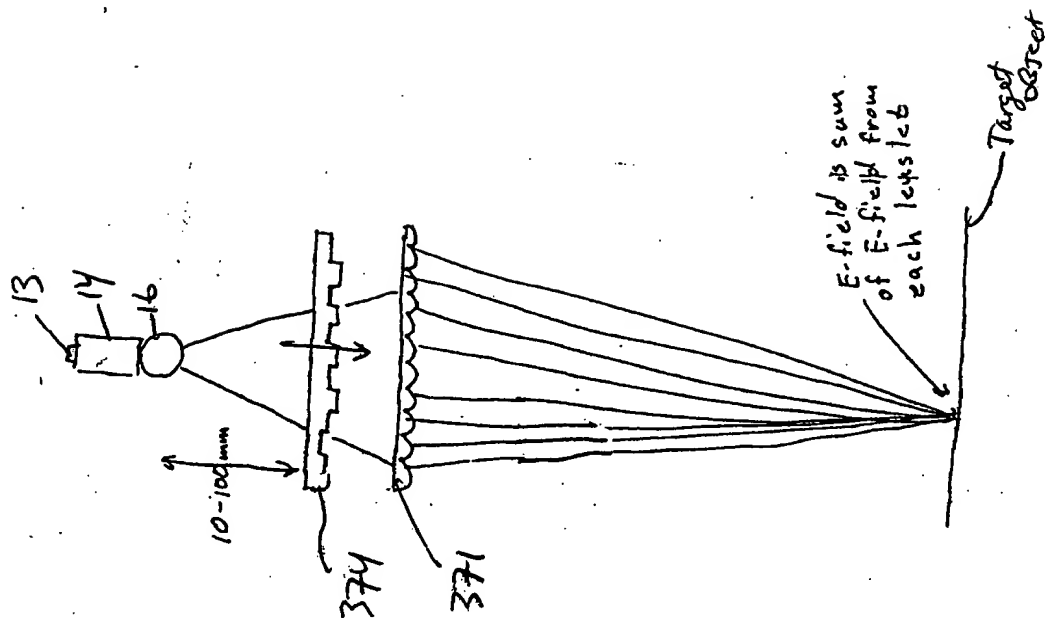


FIG 118E

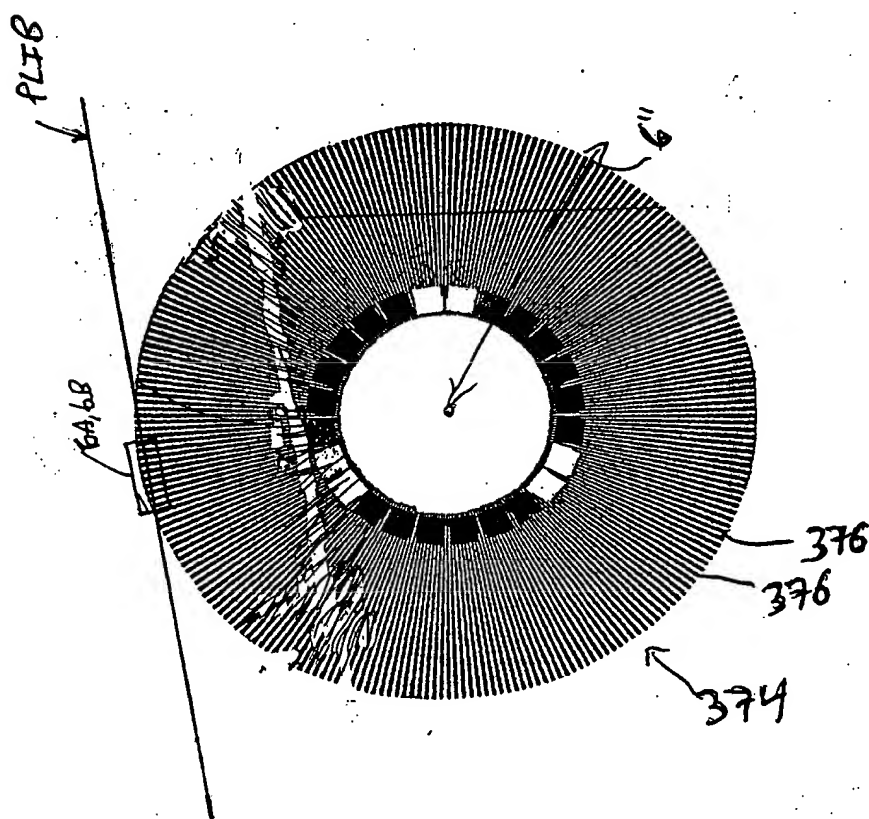
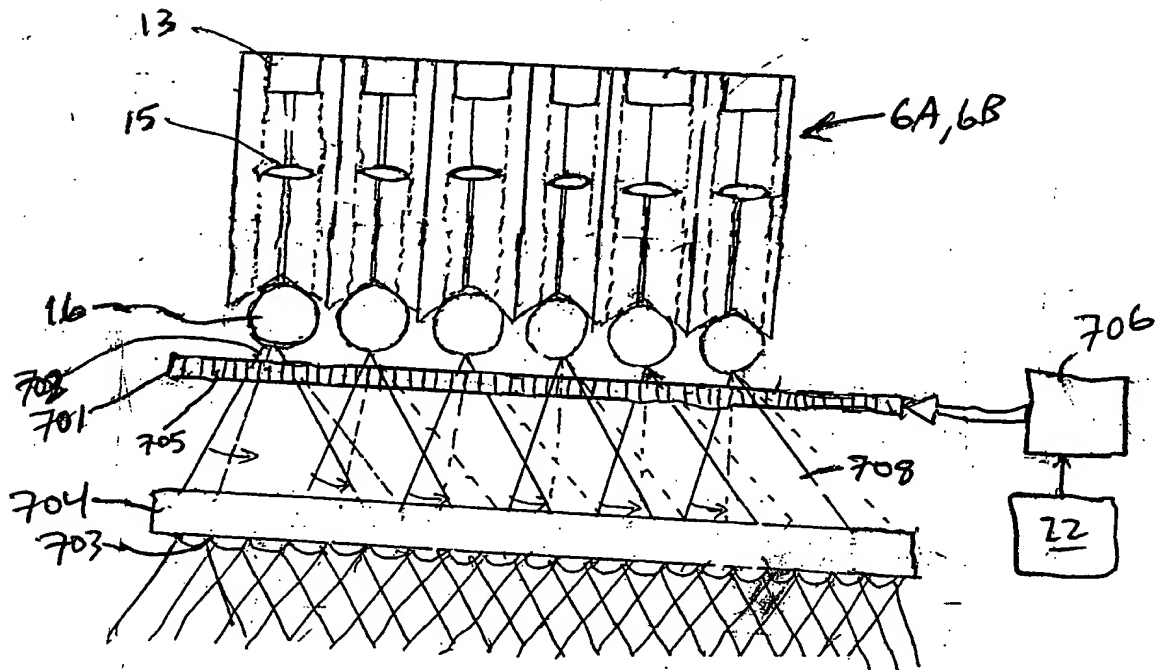
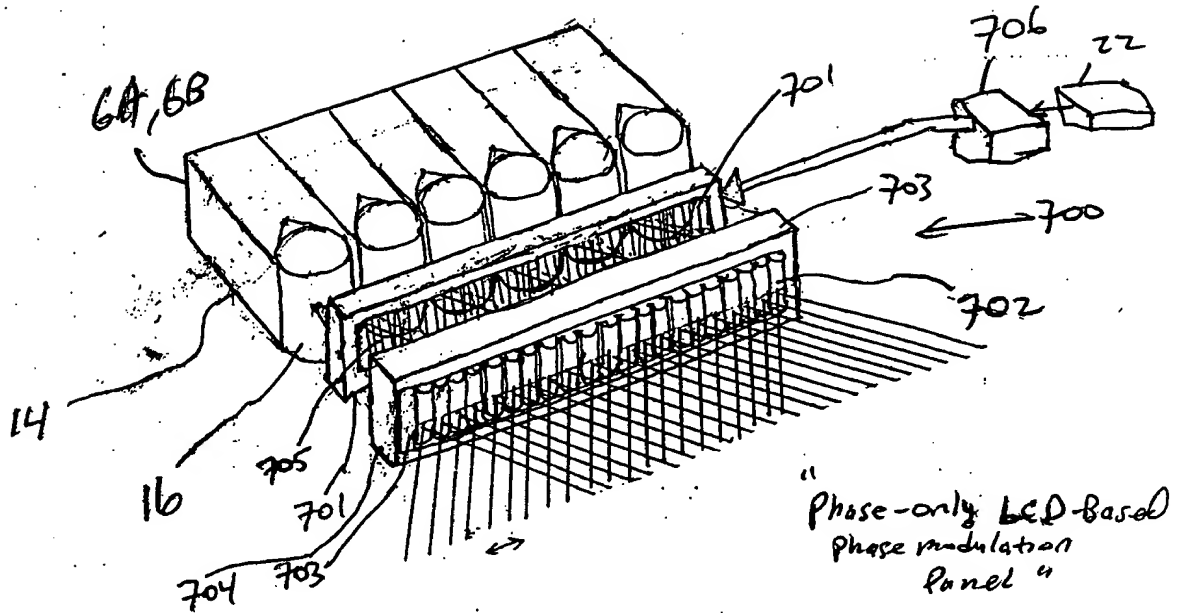


Fig. 1I8D



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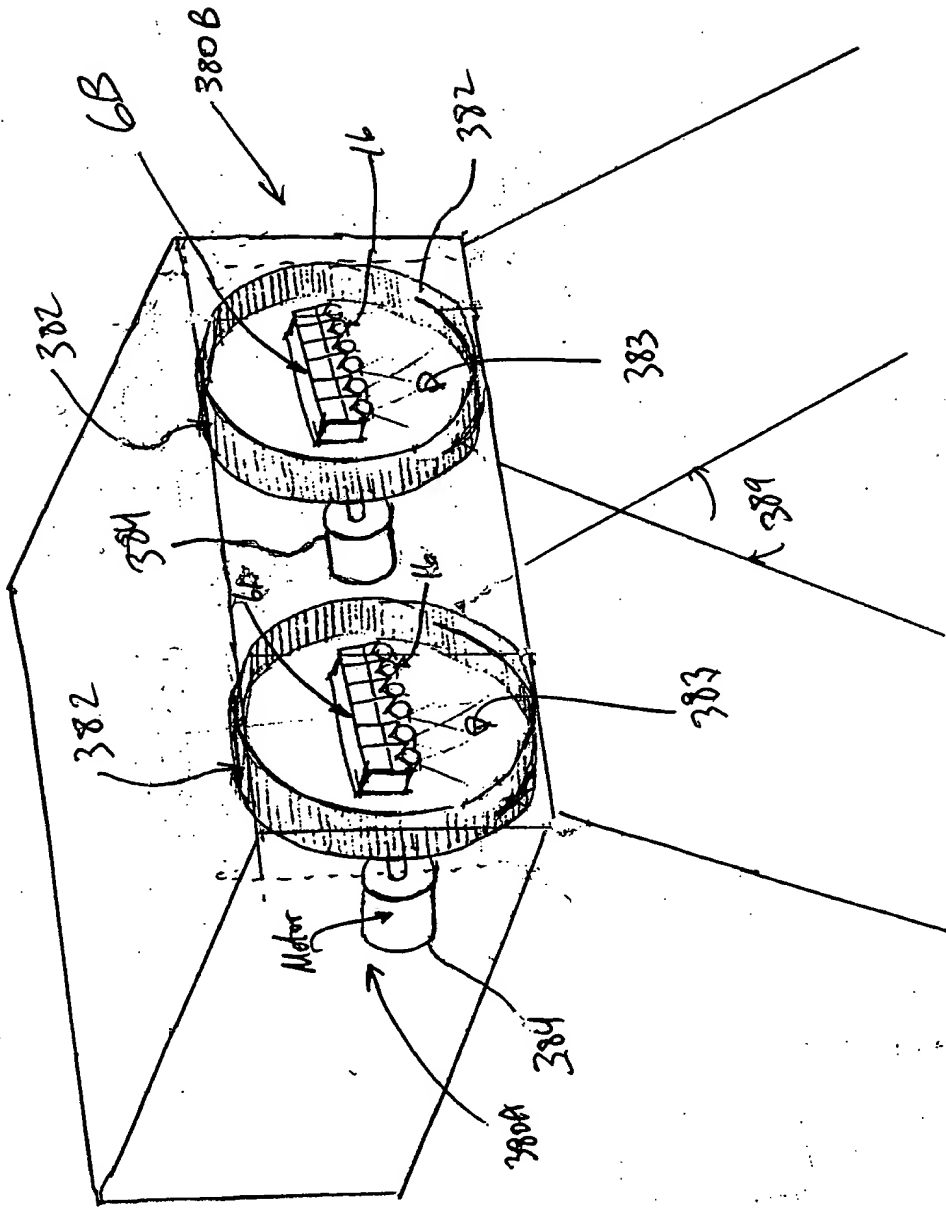
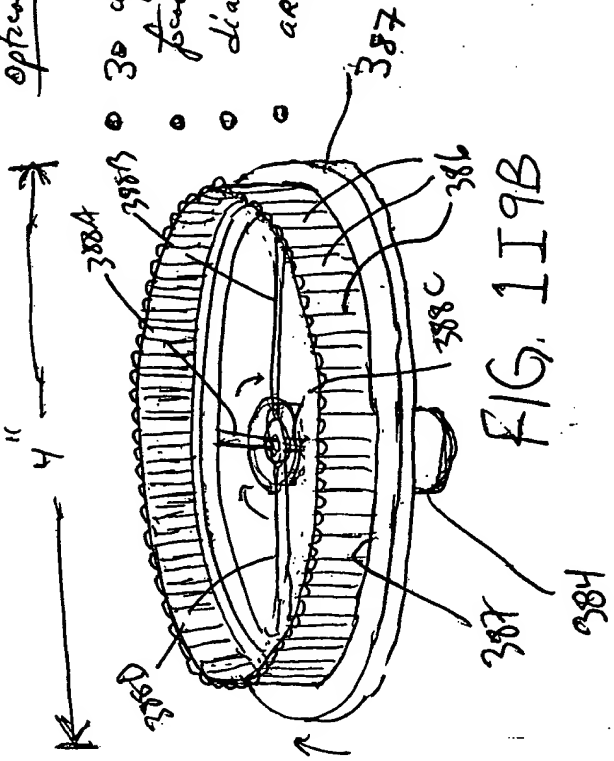


FIG. 11 9A

Optical specifications:

- 30 cylindrical lens (lens) per linear inch
- focal length: 2.0 millimeters
- diameter of cylindrical carousel ≈ 4 inches
- acrylic material



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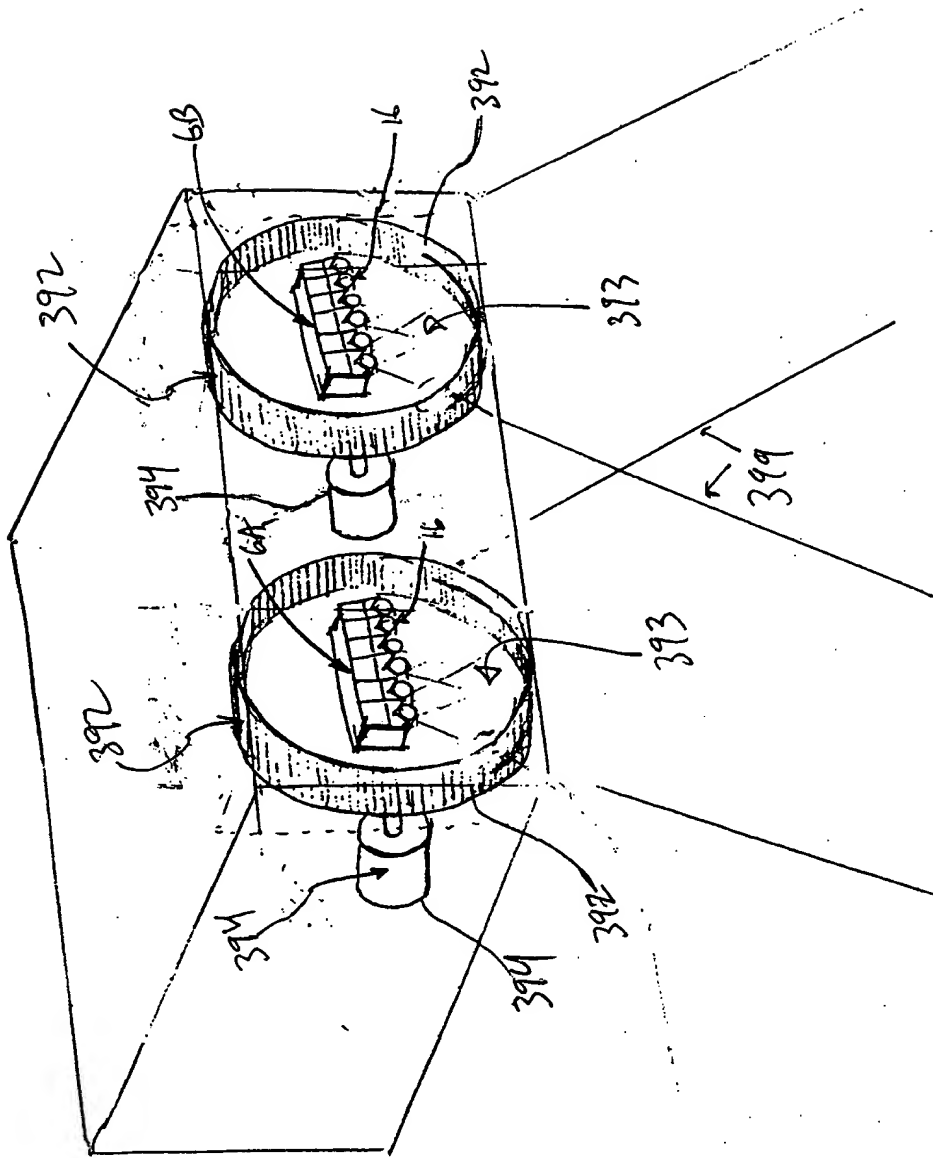


FIG. 1I10A

SECRET

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optical specifications.

- 30 cylindrical bars (lines) per linear inch
- total length = 2.0 millimeters
- diameter of cylindrical bar or set ≈ 44 inches

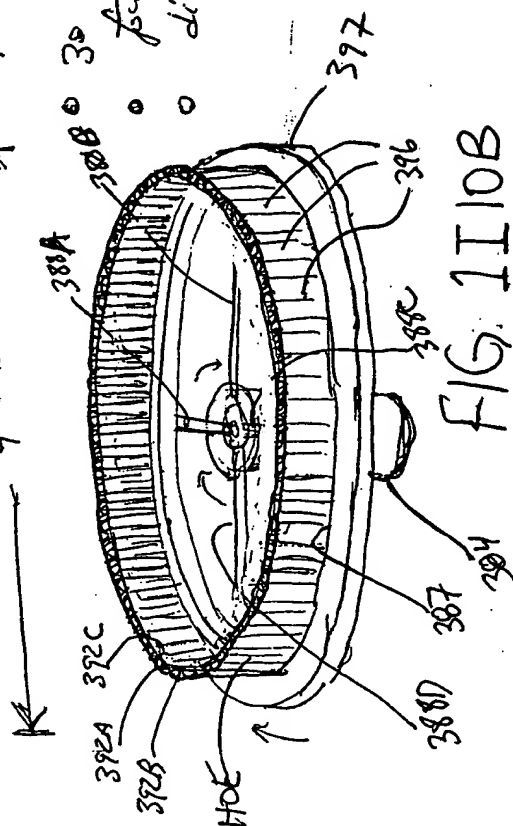


FIG. 110B

TOTAL 58506660

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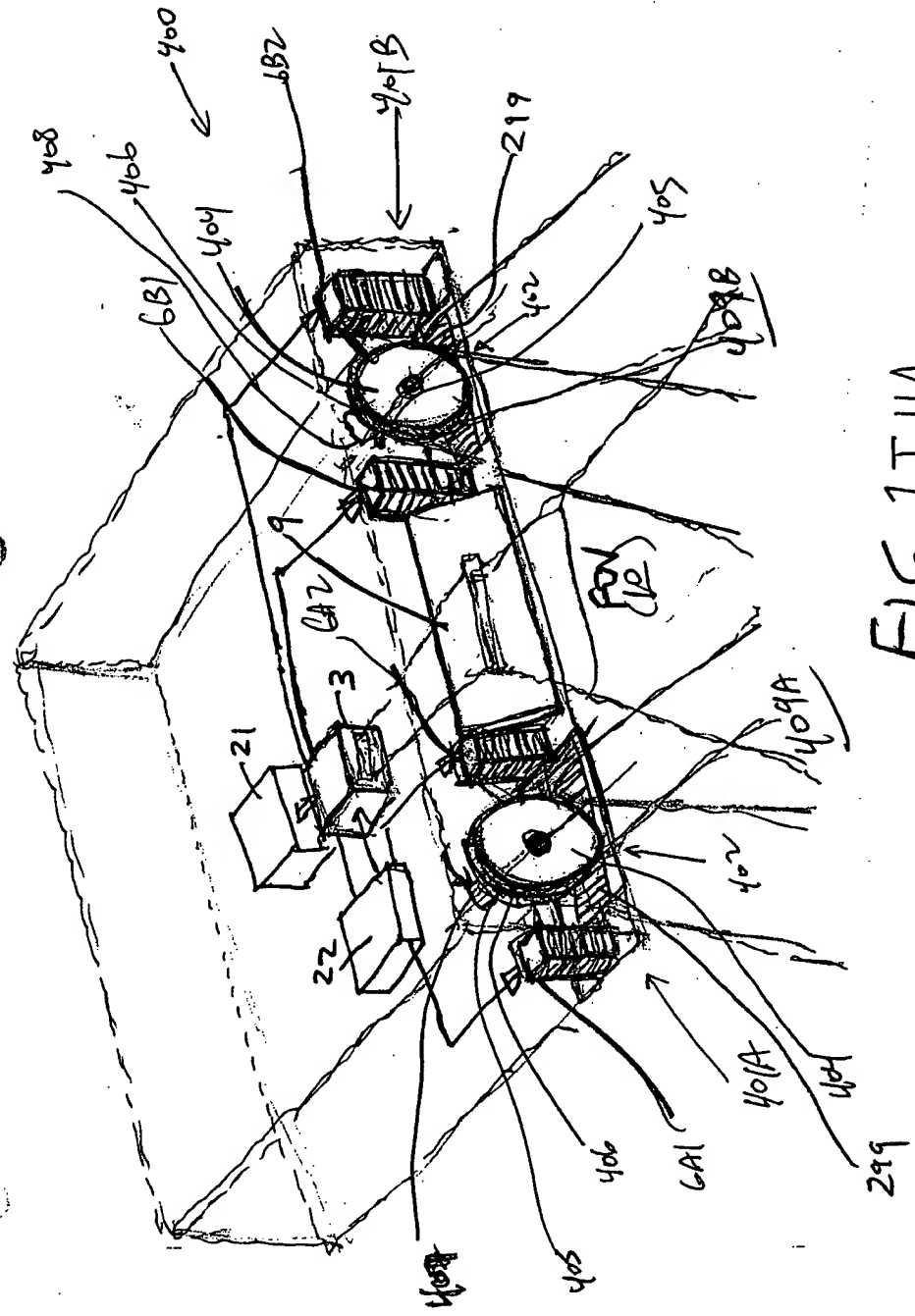


FIG. 111A

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TOTAL: 53506660

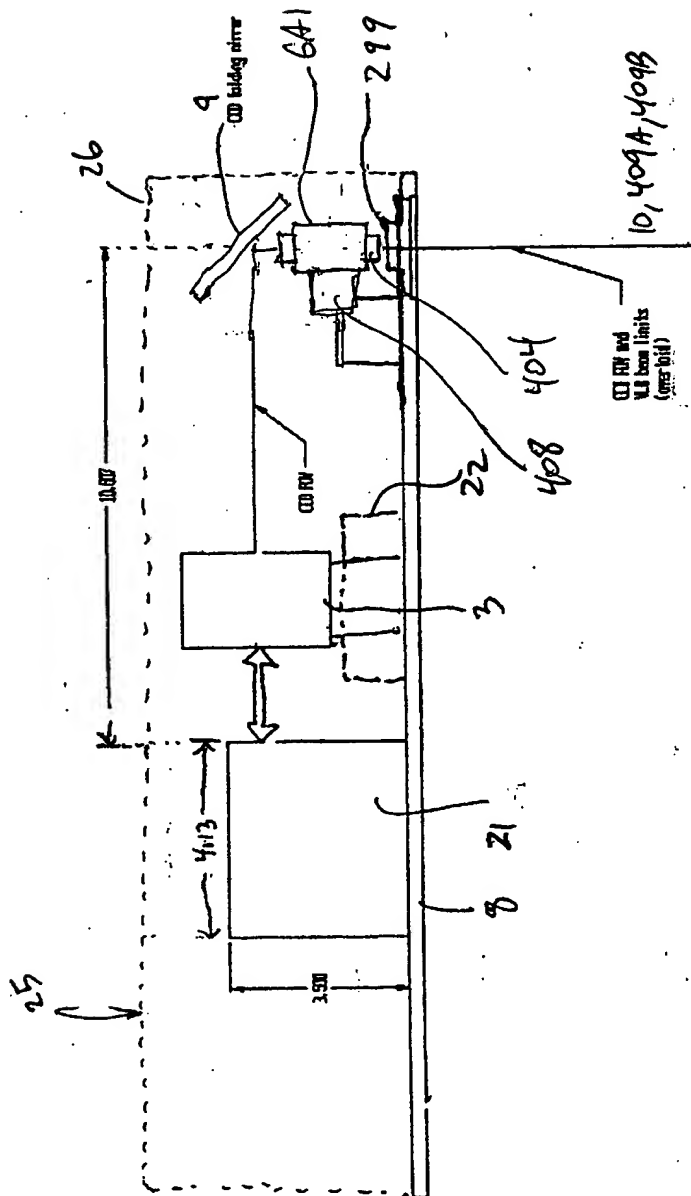


FIG 1I1/B

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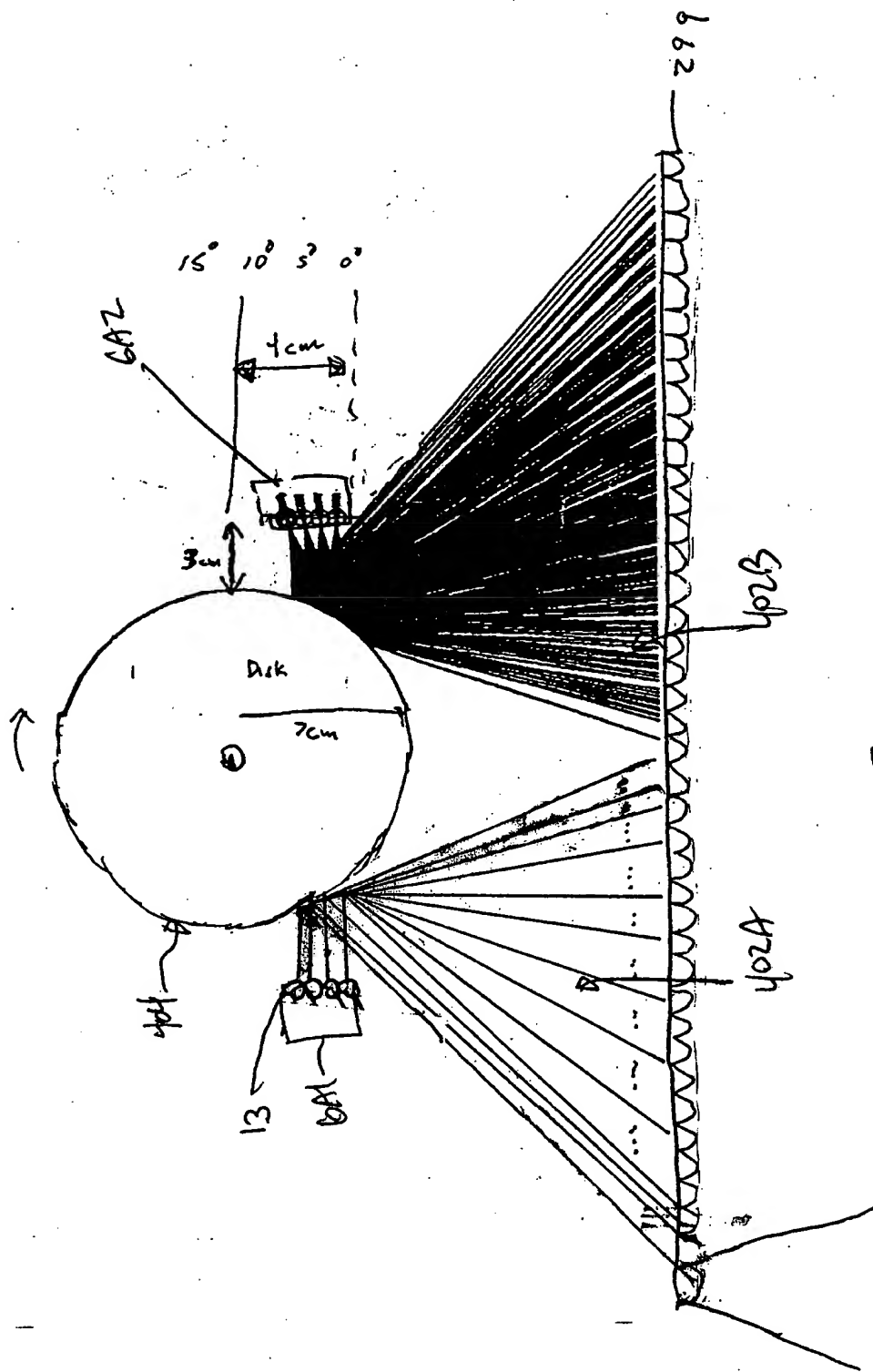
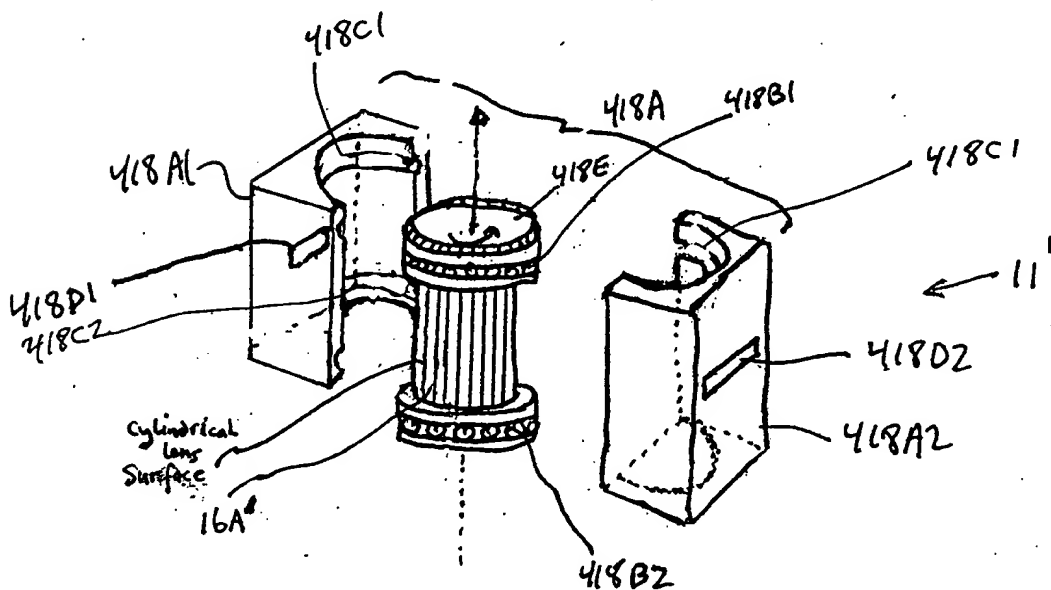
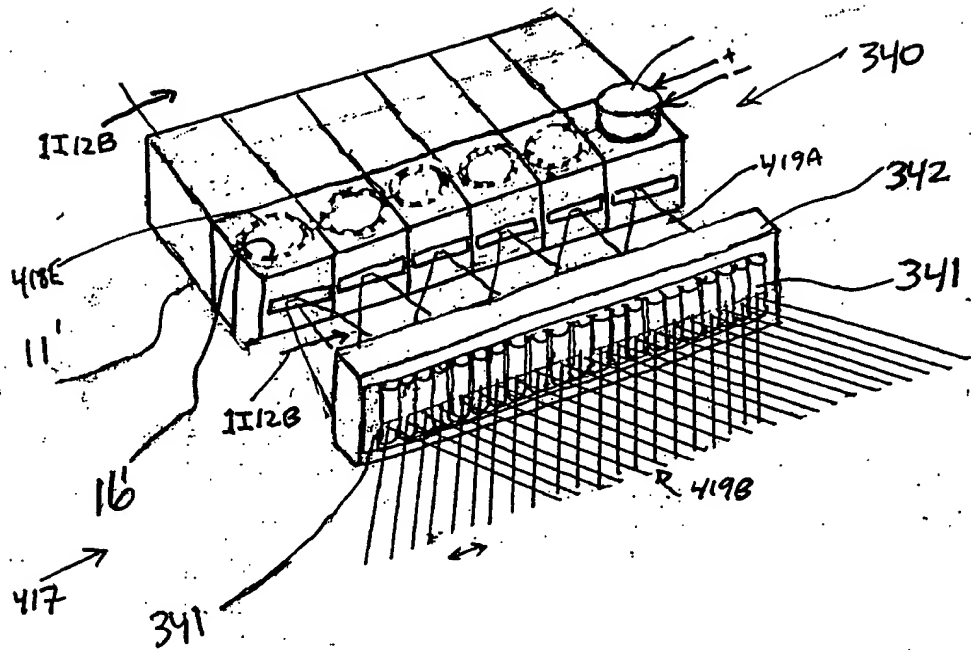
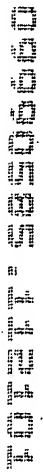
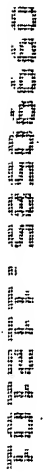


FIG. 1I11C

FOOTNOTES: 58506660



[illegible][illegible]

Second Generalized Method of
Reducing Speckle-Noise Patterns
at Image Detection Array
of the FFD Subsystem (3)

(TIME)

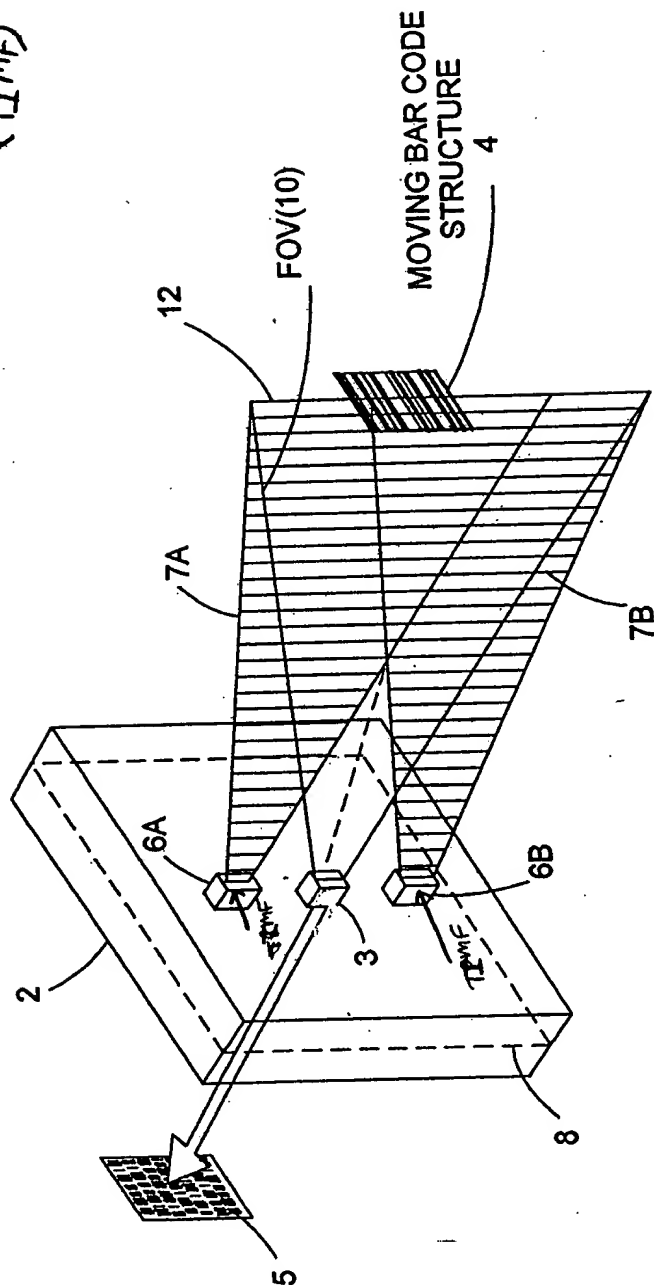


FIG. 1113

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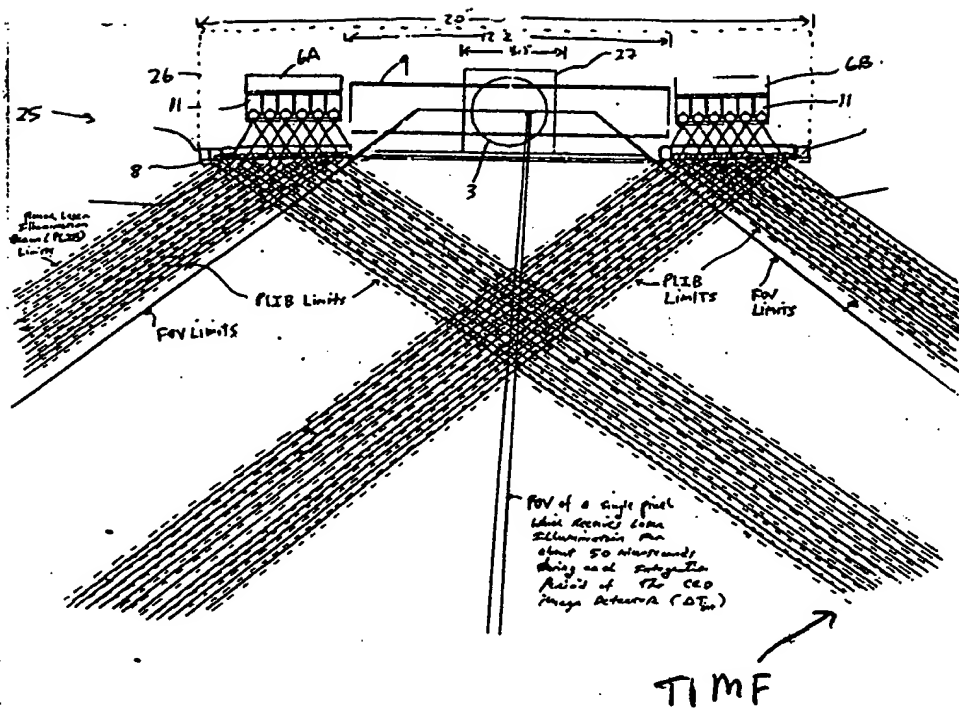


FIG. 1 I 13A

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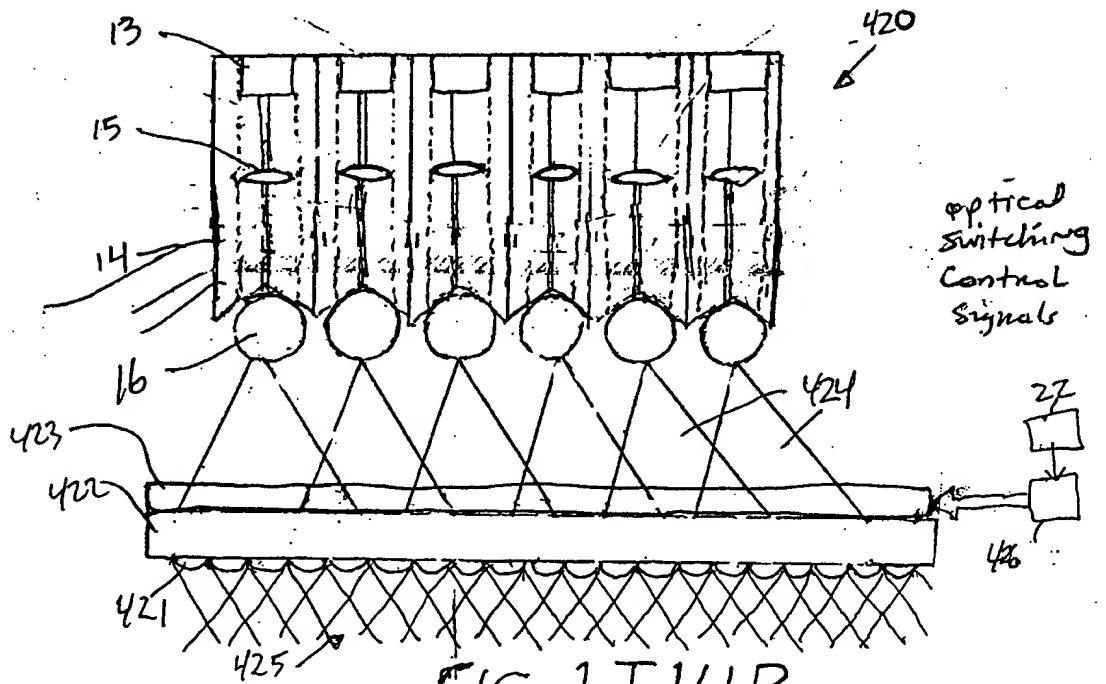
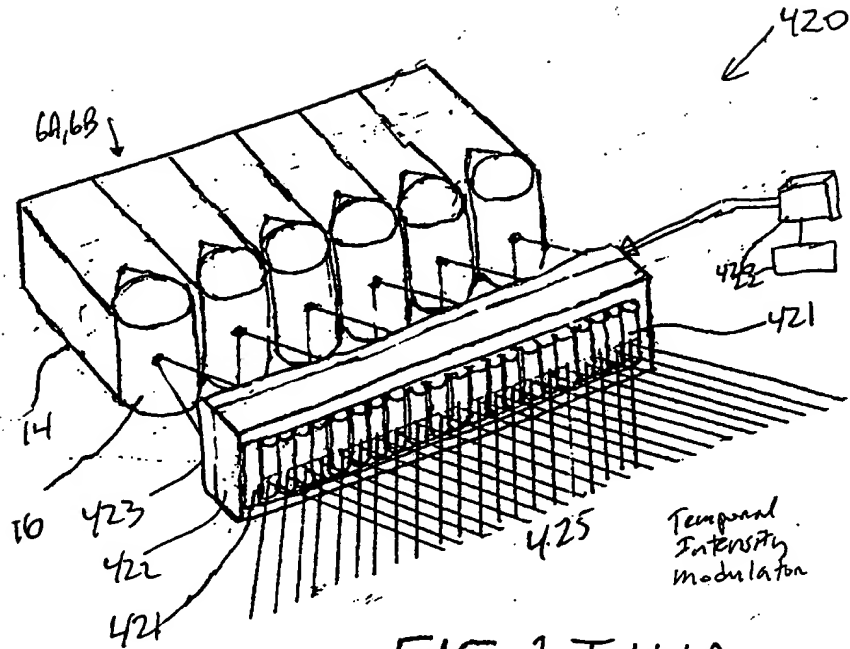
The Second Generalized Speckle-Noise Pattern Reduction Method
Of The Present Invention

Prior to illumination of the target with the planar laser illumination beam (PLIB), modulate the temporal intensity of the transmitted PLIB along the planar extent thereof according to a temporal intensity modulation function (TIMF) so as to

produce numerous substantially different time-varying speckle-noise patterns at the image detection array of the IFD Subsystem during the photo-integration time period thereof.

Temporally average the numerous substantially different time-varying speckle-noise patterns produced at the image detection array in the IFD Subsystem during the photo-integration time period thereof, so as to thereby reduce power of the speckle-noise pattern observed at the image detection array.

FIG 1 I 13 B



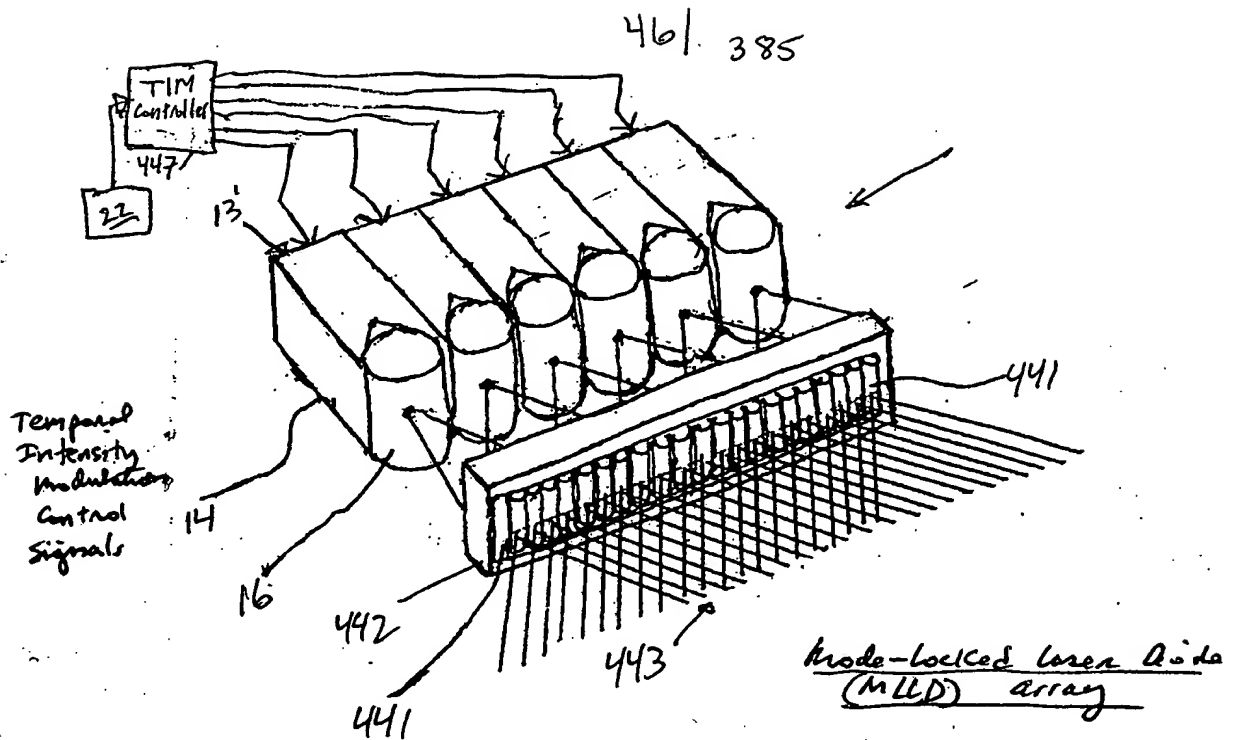


FIG. 1I15A

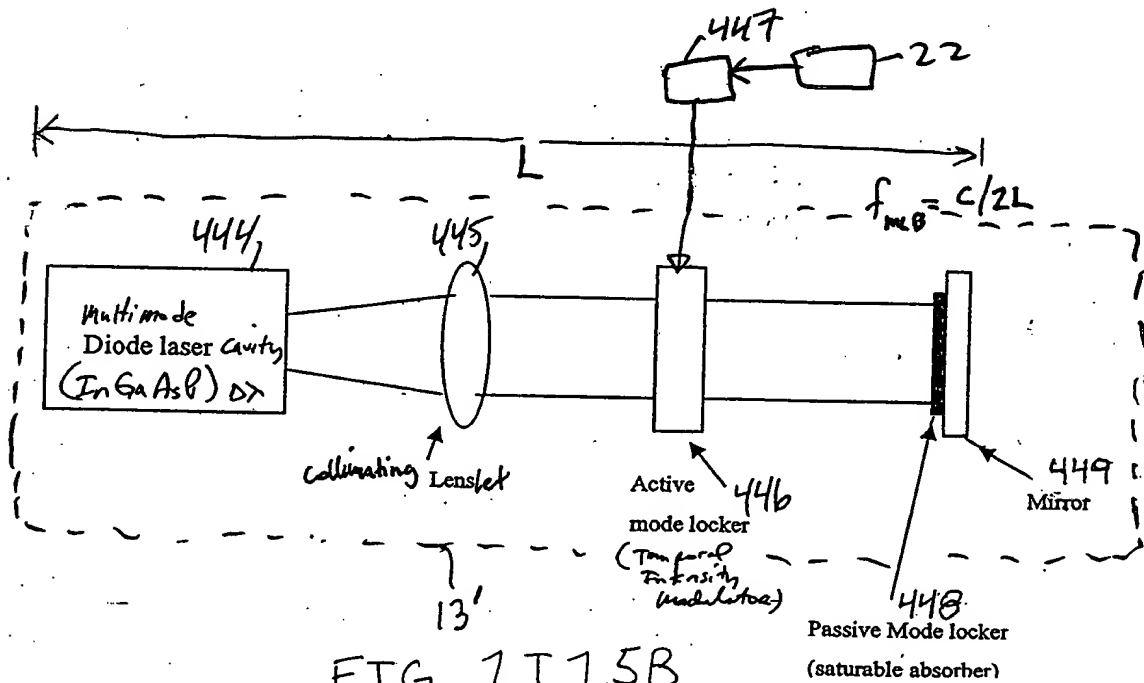


FIG. 1I15B

000055-112101
101211-5850660

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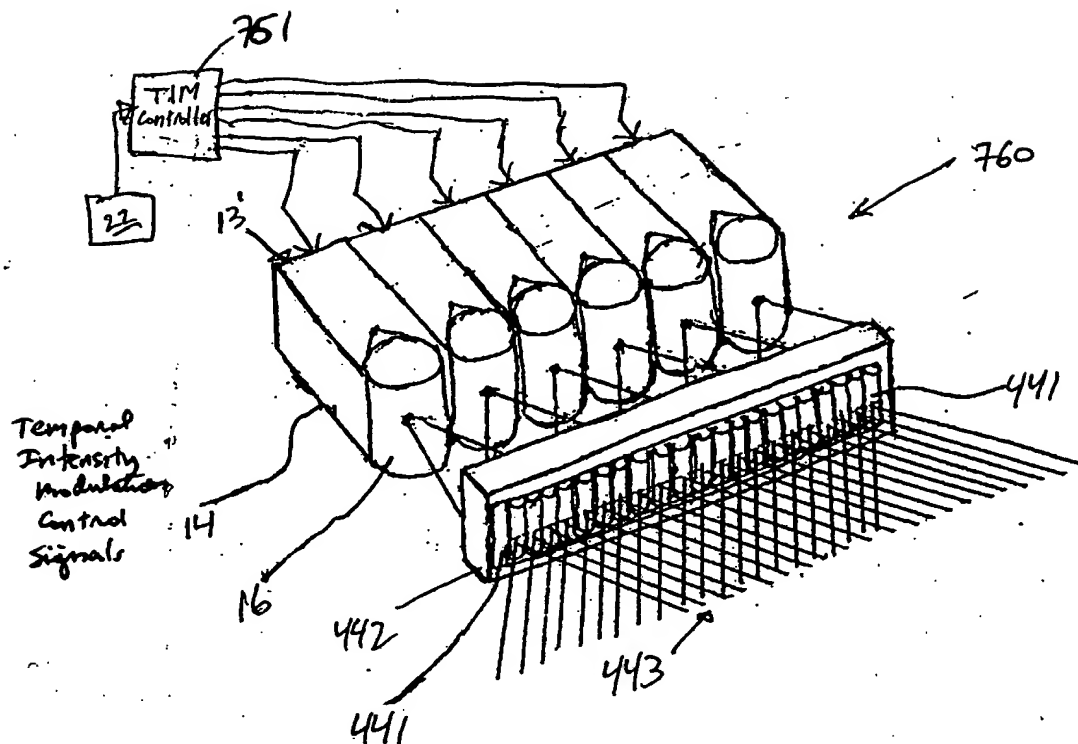


FIG. 1I15C

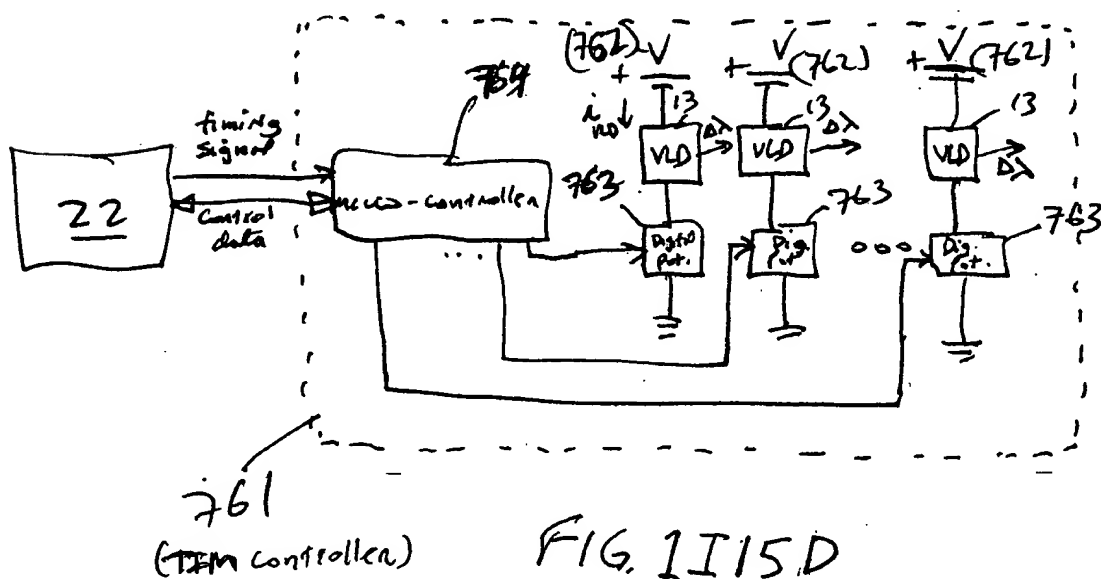


FIG. 1I15D

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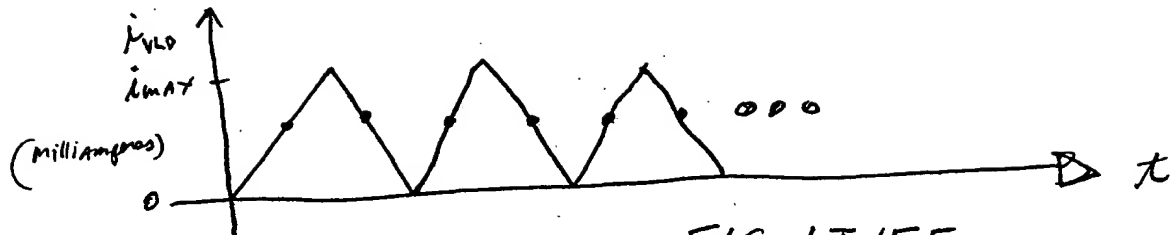


FIG. 1I15E

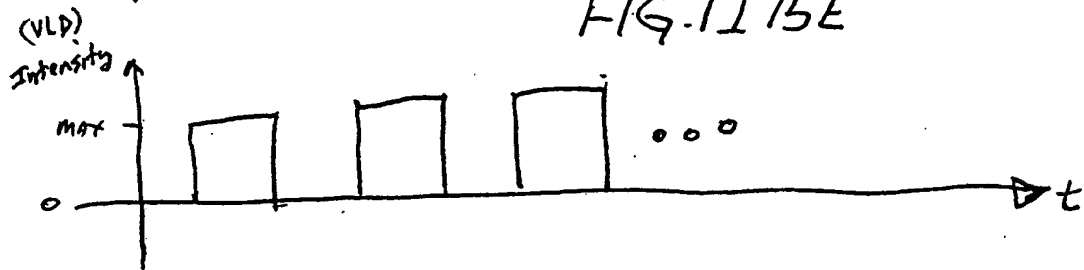


FIG. 1I15E

00000585 113101

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Third Generalized Method of
Reducing Spackla-Noise Patterns
at Image Detection Array
of the FFD Subsystem (3)

(TIME)

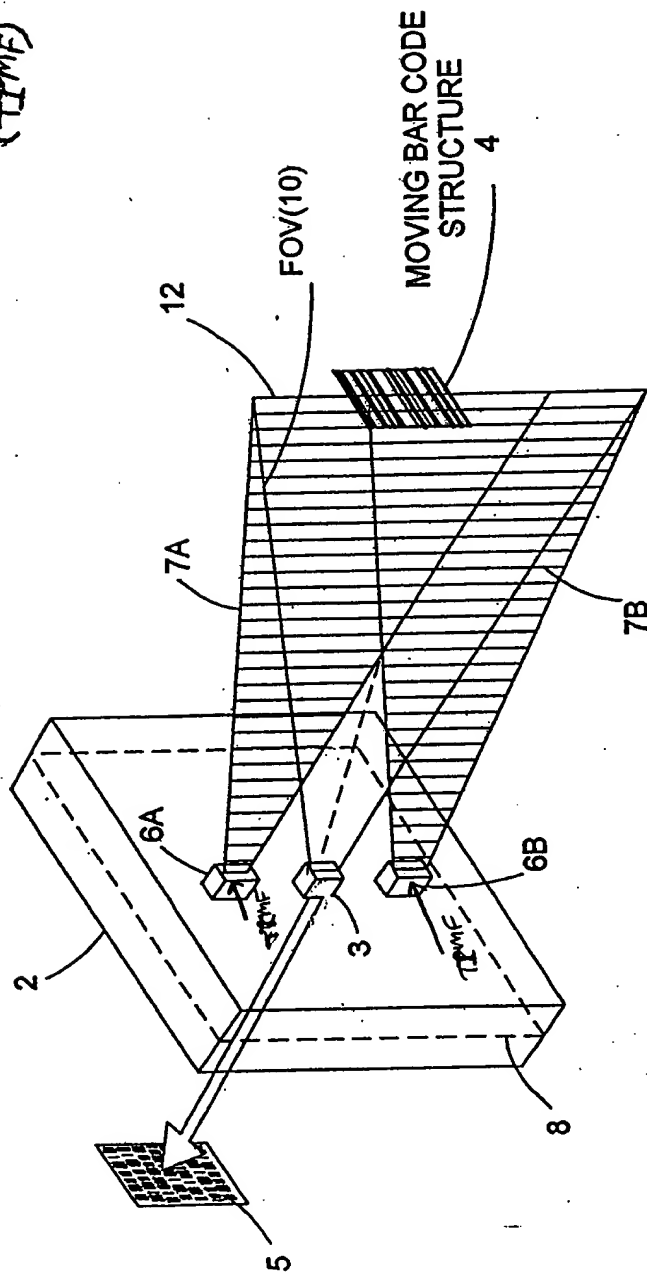
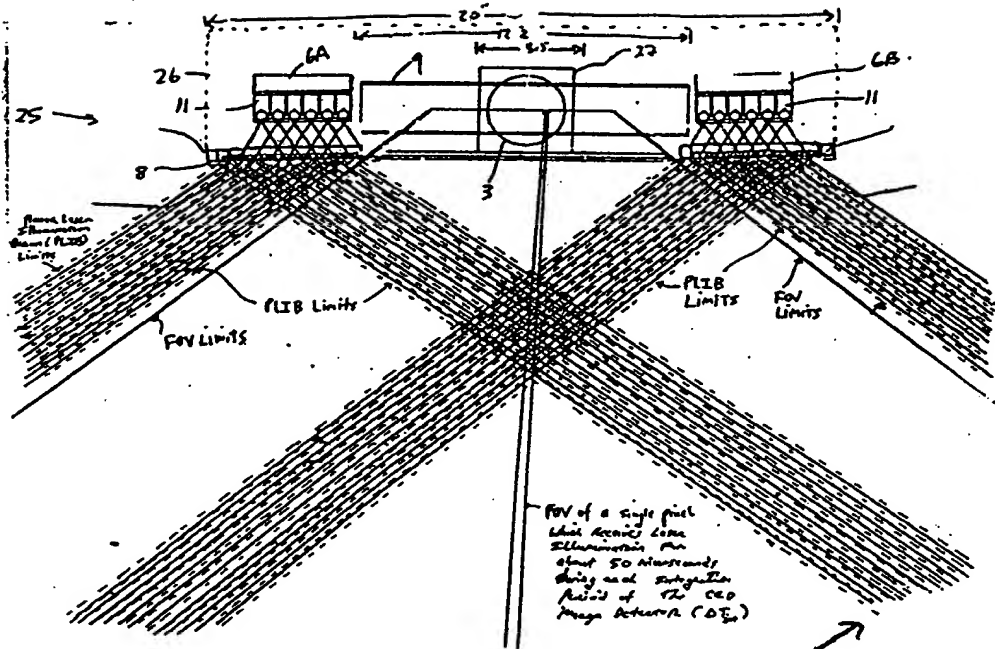


FIG. 1116

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TPMF

FIG. 1 I 16A

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Third Generalized Speckle-Noise Pattern Reduction Method
Of The Present Invention

Prior to illumination of the target with the planar laser illumination beam (PLIB), modulate the temporal *phase* of the transmitted PLIB ~~along the planar extent thereof~~ according to a *temporal phase* modulation function (TPMF) so as to:

produce numerous substantially different time-varying speckle-noise patterns at the image detection array of the IFD Subsystem during the photo-integration time period thereof.

↓

Temporally average the numerous substantially different time-varying speckle-noise patterns produced at the image detection array in the IFD Subsystem during the photo-integration time period thereof, so as to thereby reduce power of the speckle-noise pattern observed at the image detection array.

FIG. 1I/6B

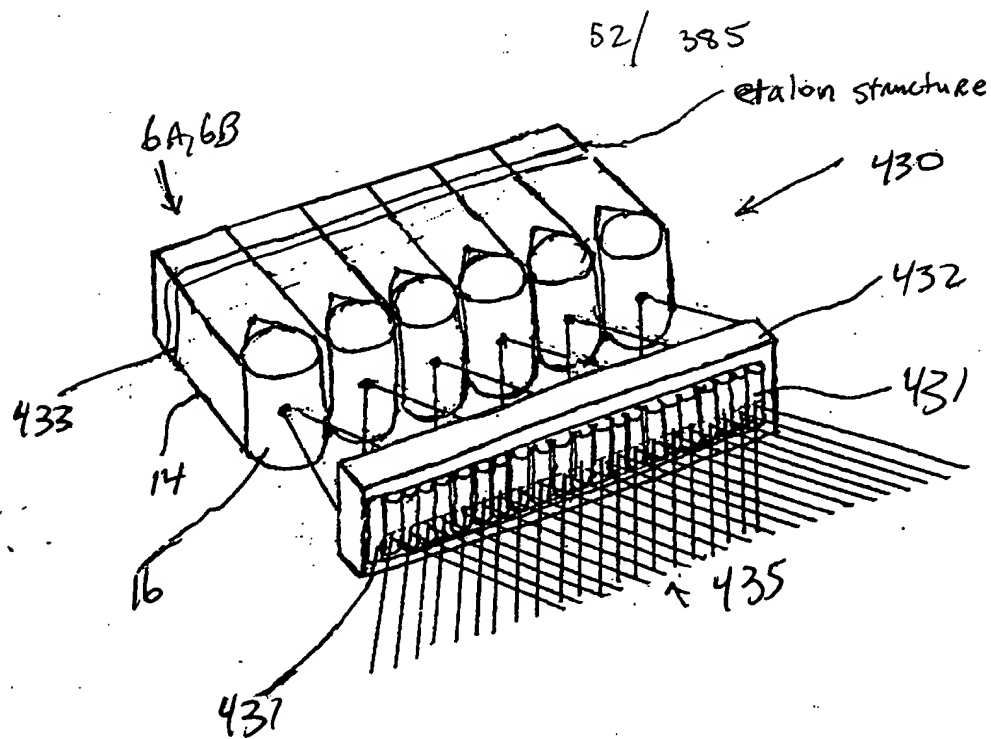


FIG. 1I17A

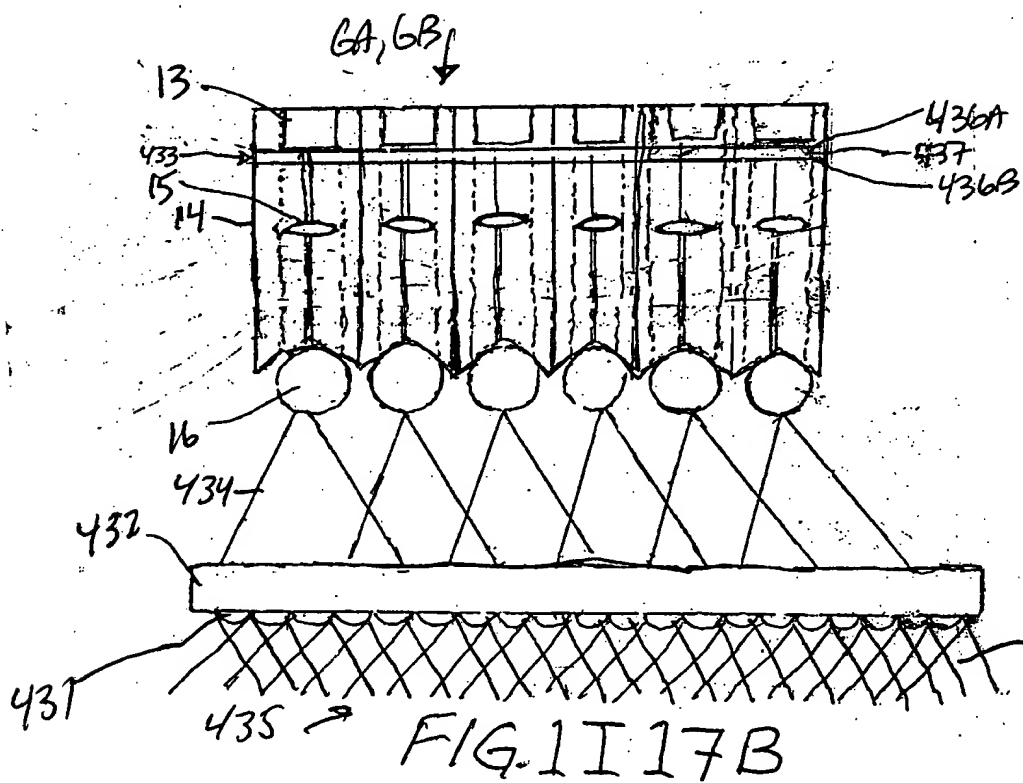


FIG. 1I17B

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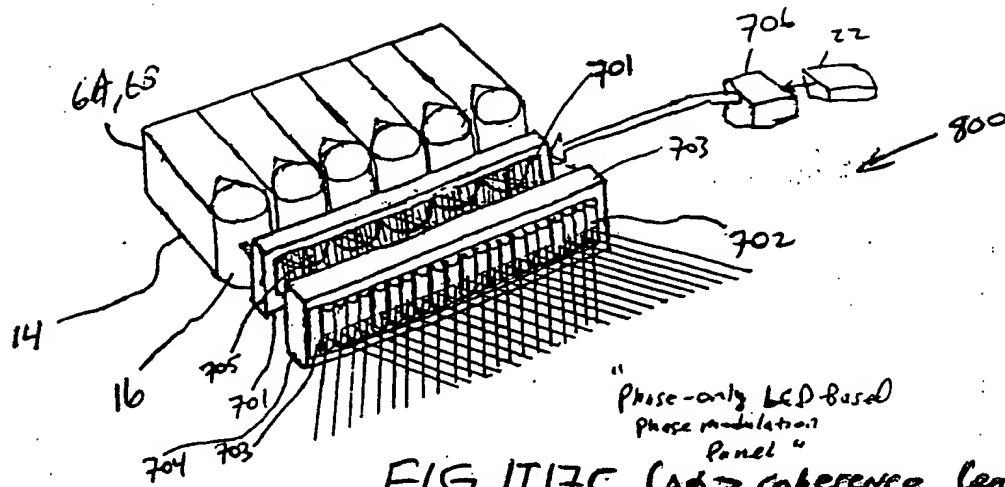


FIG. 1I17C ($\Delta\phi >$ coherence length)
of VLD

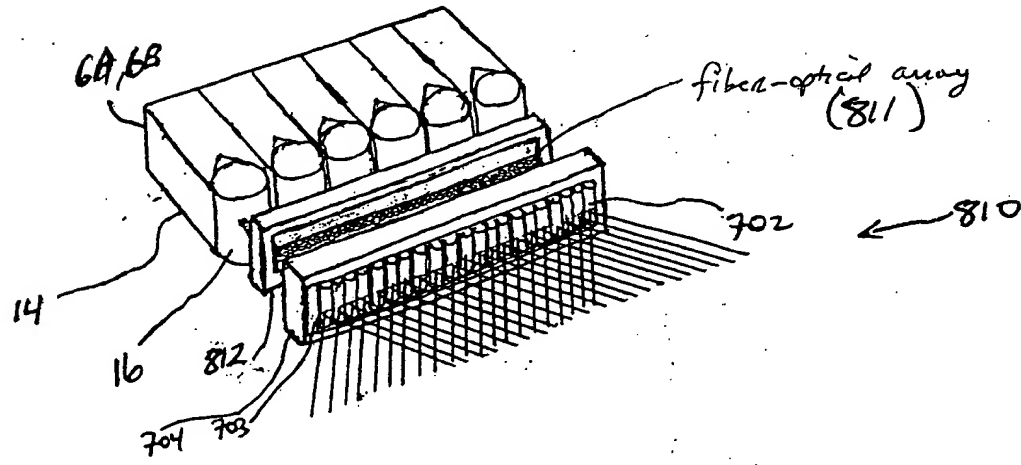


FIG. 1I17D

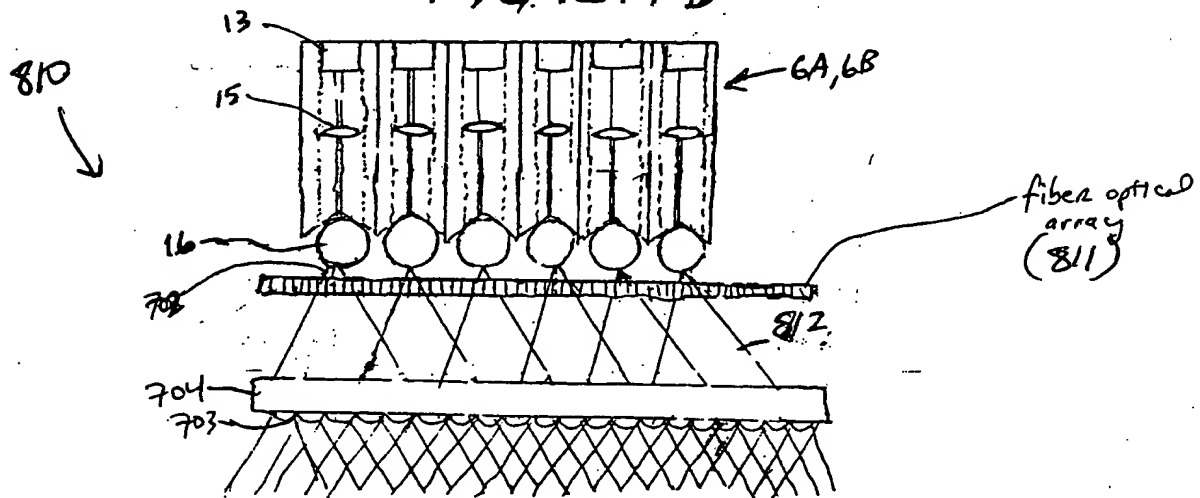


FIG. 1I17E

00000555 440404

Fourth Generalized Method of
Reducing Speckle-Noise Patterns
of Image Detection Array
of the FFD Subsystem (3)

(TFMP)

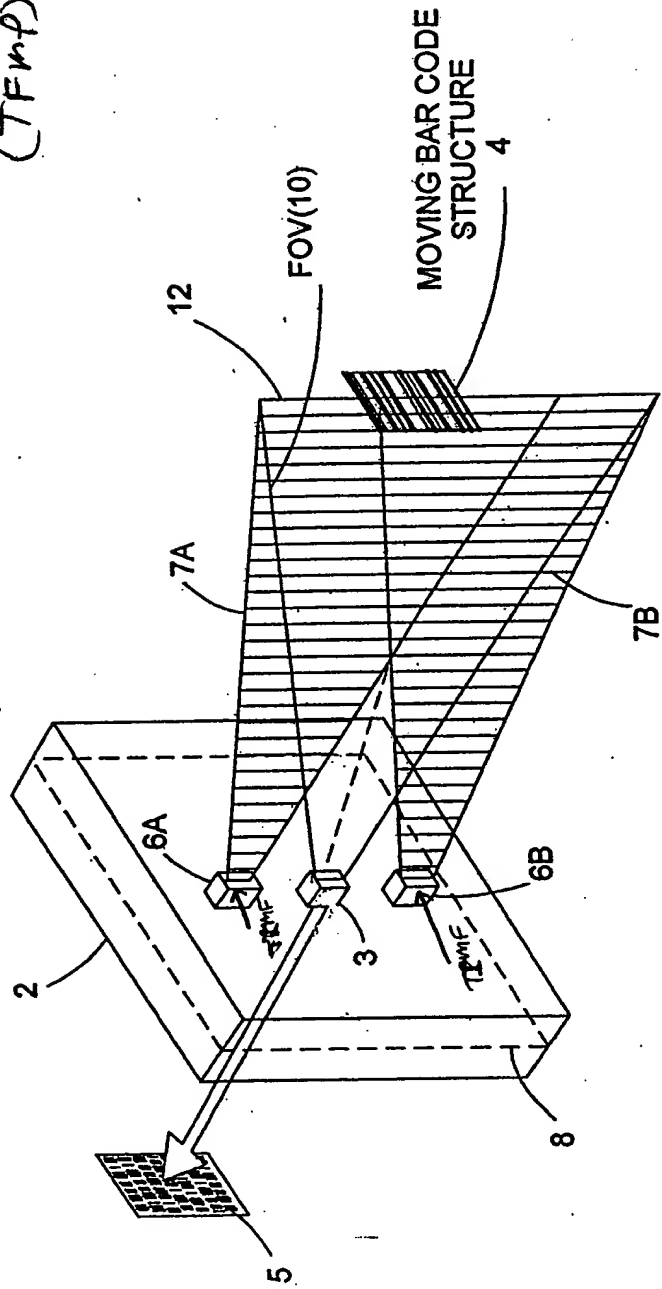


FIG. 1118

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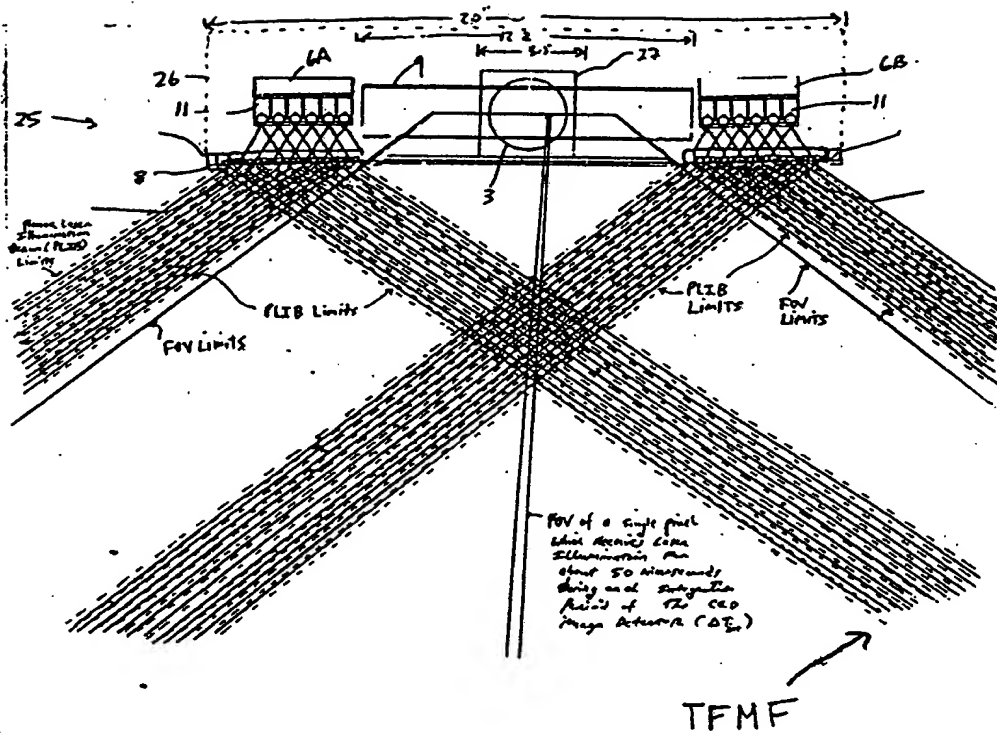


FIG. 1 I 18A

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Fourth Generalized Speckle-Noise Pattern Reduction Method
Of The Present Invention

Prior to illumination of the target with the planar laser illumination beam (PLIB), modulate the temporal frequency of the transmitted PLIB according to a temporal intensity modulation function (T IMF) so as to :

produce numerous substantially different time-varying speckle-noise patterns at the image detection array of the IFD Subsystem during the photo-integration time period thereof.

Temporally average the numerous substantially different time-varying speckle-noise patterns produced at the image detection array in the IFD Subsystem during the photo-integration time period thereof, so as to thereby reduce power of the speckle-noise pattern observed at the image detection array.

FIG. 1I18B.

0000535 112101

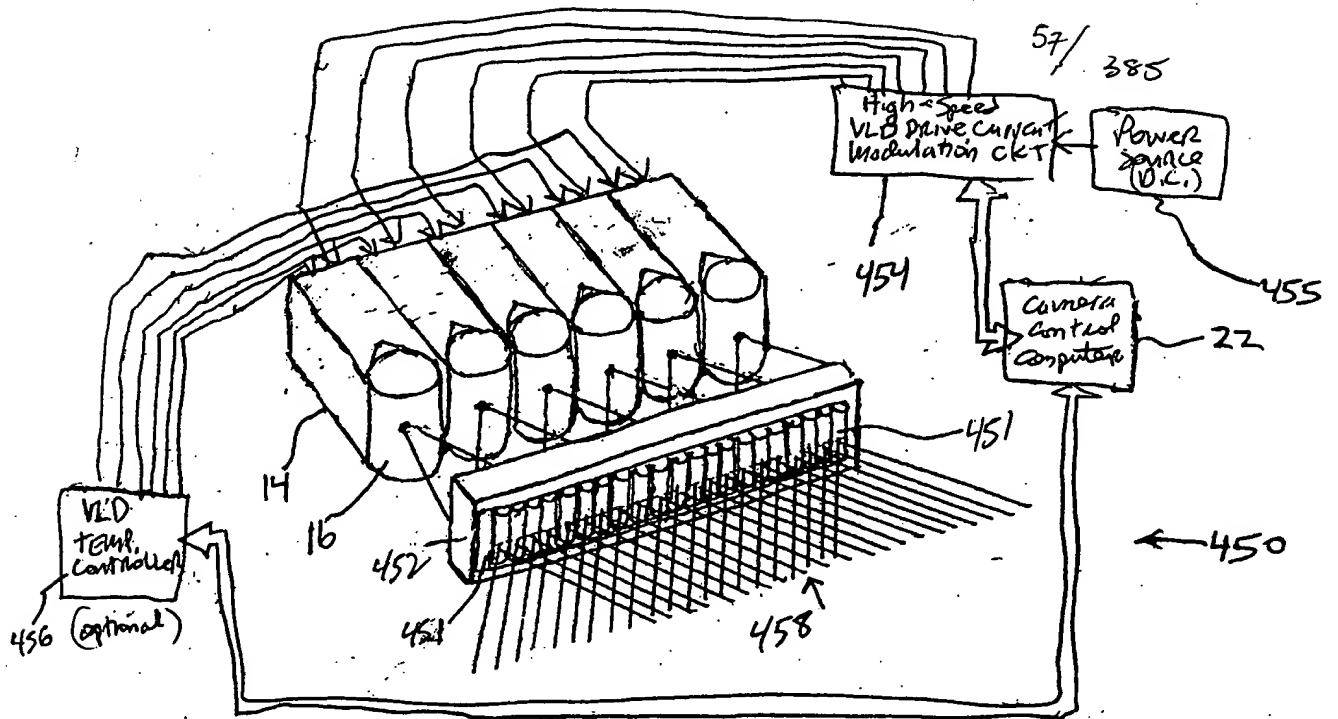


FIG. 1I19A

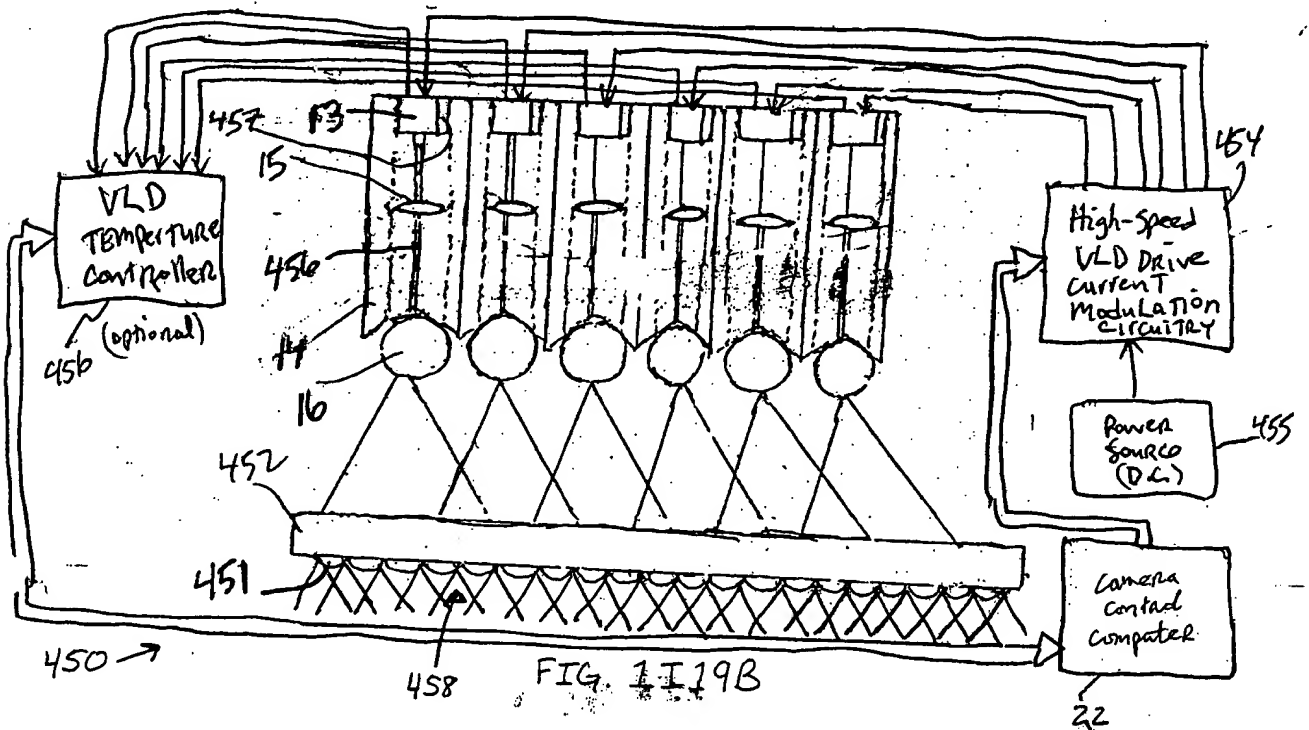


FIG. 1I19B

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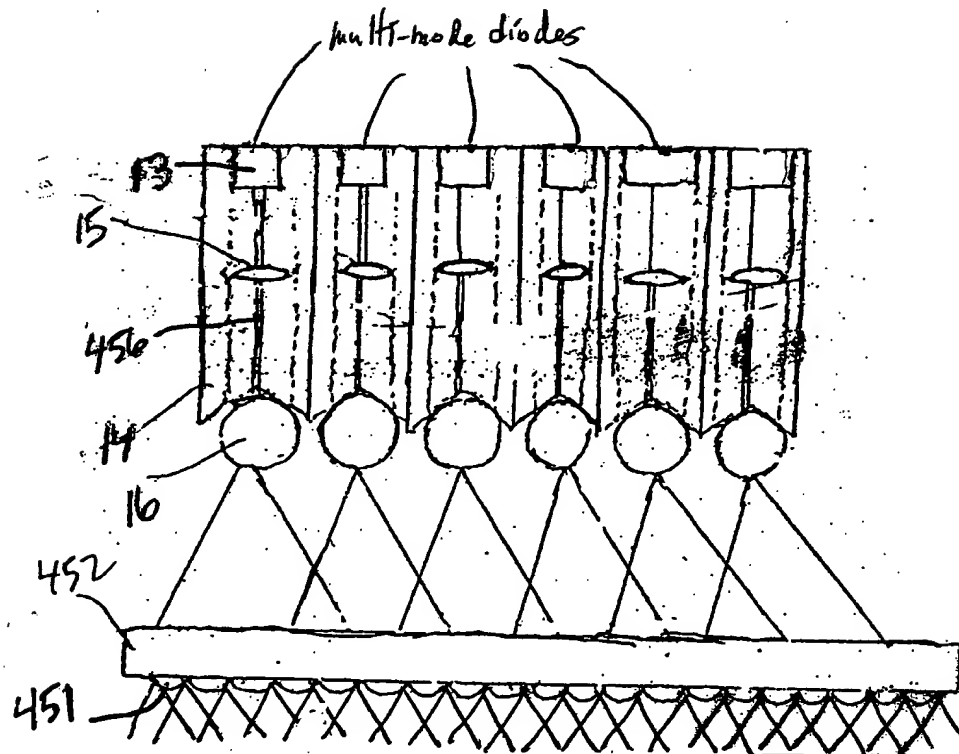


FIG 1119C

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Fifth GENERALIZED METHOD
of Reducing Speckle-Noise
PATTERNS AT IMAGE
DETECTION array OF THE
FPD subsystem (3)

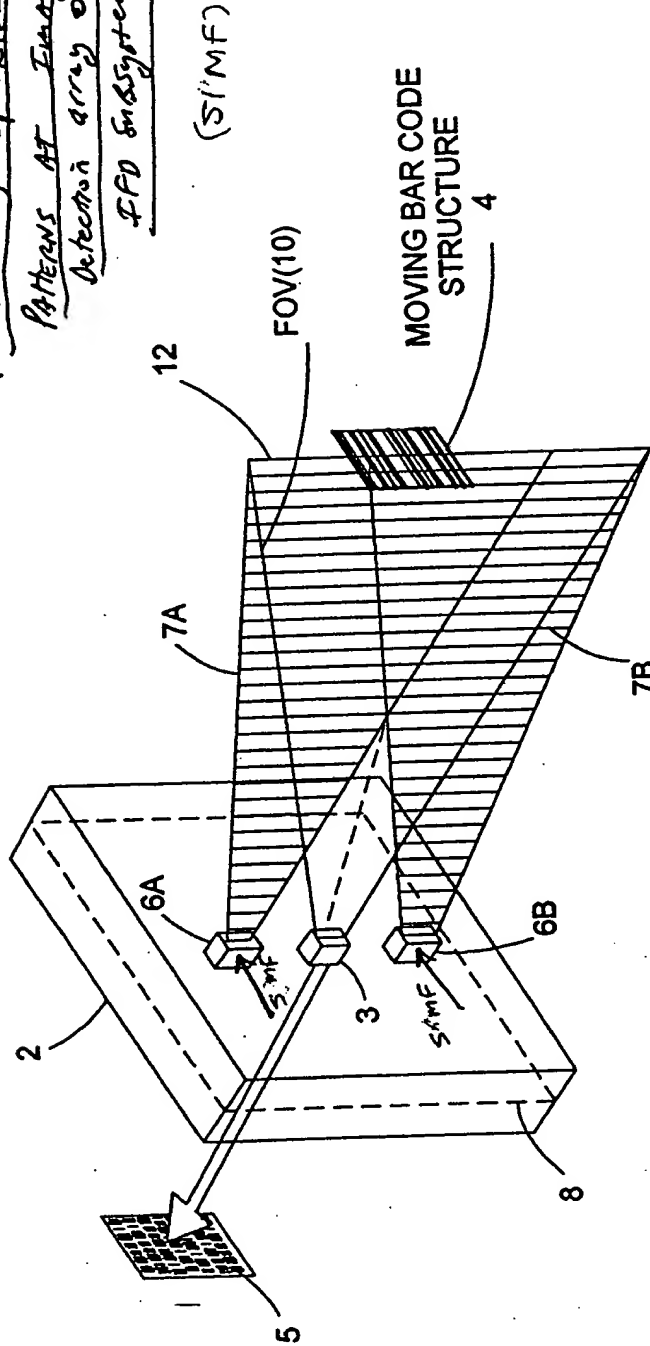
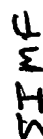


FIG 1E 20

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Prior to object illumination

FIG. 11 20A

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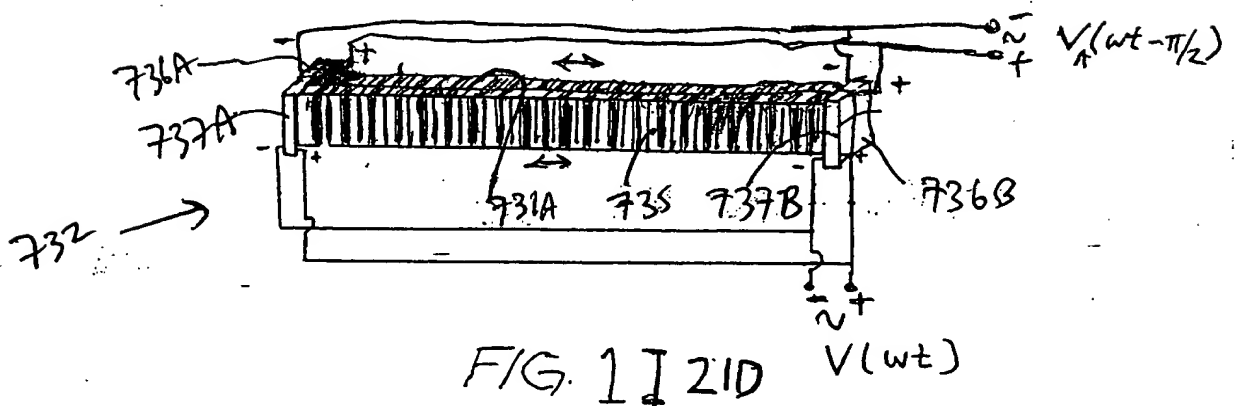
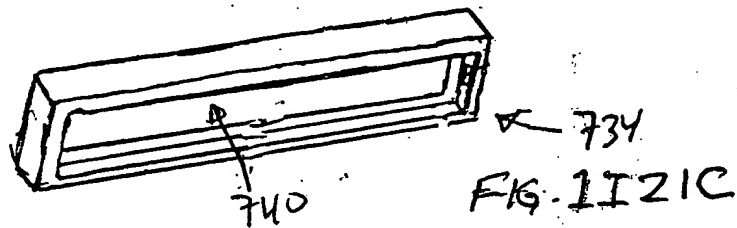
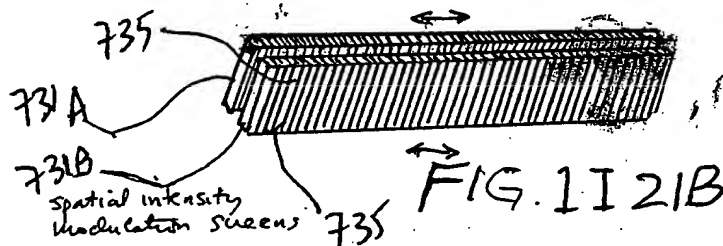
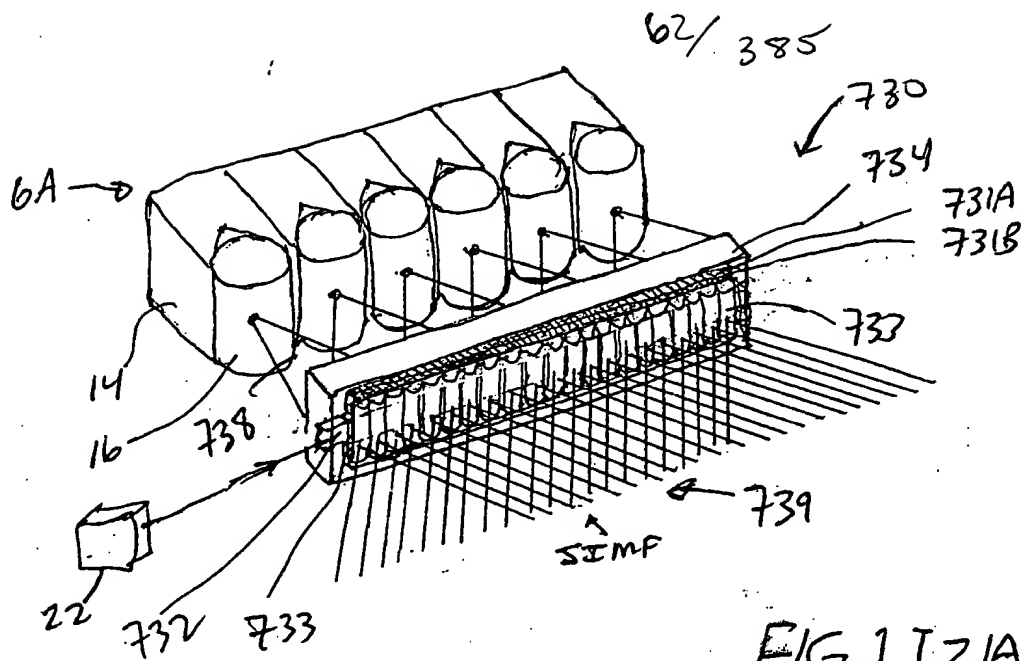
Fifth Generalized Speckle-Noise Pattern Reduction Method
Of The Present Invention

Prior to illumination of the target with the planar laser illumination beam (PLIB), modulate the spatial intensity of the transmitted PLIB along the planar extent thereof according to a spatial intensity modulation function (SIMF) so as to:

produce numerous substantially different time-varying speckle-noise patterns at the image detection array of the IFD Subsystem during the photo-integration time period thereof.

Temporally average the numerous substantially different time-varying speckle-noise patterns produced at the image detection array in the IFD Subsystem during the photo-integration time period thereof, so as to thereby reduce power of the speckle-noise pattern observed at the image detection array.

FIG. 1I20B



Generalized Method of
Reducing Speckle-Noise Patterns
at Image Detection array
of the IFD Subsystem

(SIMF)

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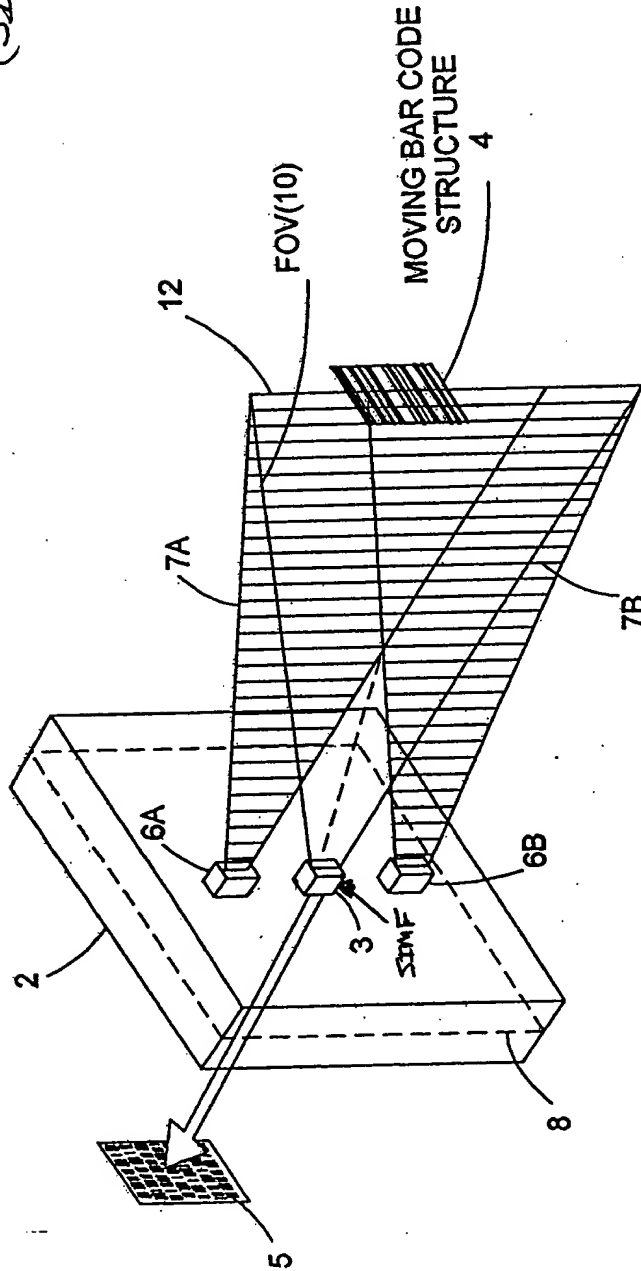


FIG. 1I 22

[illegible]

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Sixth Generalized Speckle-Noise Pattern Reduction Method
Of The Present Invention

After illumination of the target with the planar laser illumination beam (PLIB), modulate the spatial intensity of the reflected/scattered (i.e. received) PLIB along the planar extent thereof according to a spatial intensity modulation function (SIMF) so as to :

produce numerous substantially different time-varying speckle-noise patterns at the image detection array of the IFD Subsystem during the photo-integration time period thereof.

Temporally average the many substantially different time-varying speckle-noise patterns produced at the image detection array in the IFD Subsystem during the photo-integration time period thereof, so as to thereby reduce the speckle-noise pattern observed at the image detection array.

FIG. 1I 22B

00000505 11101
TOTAL 58506660

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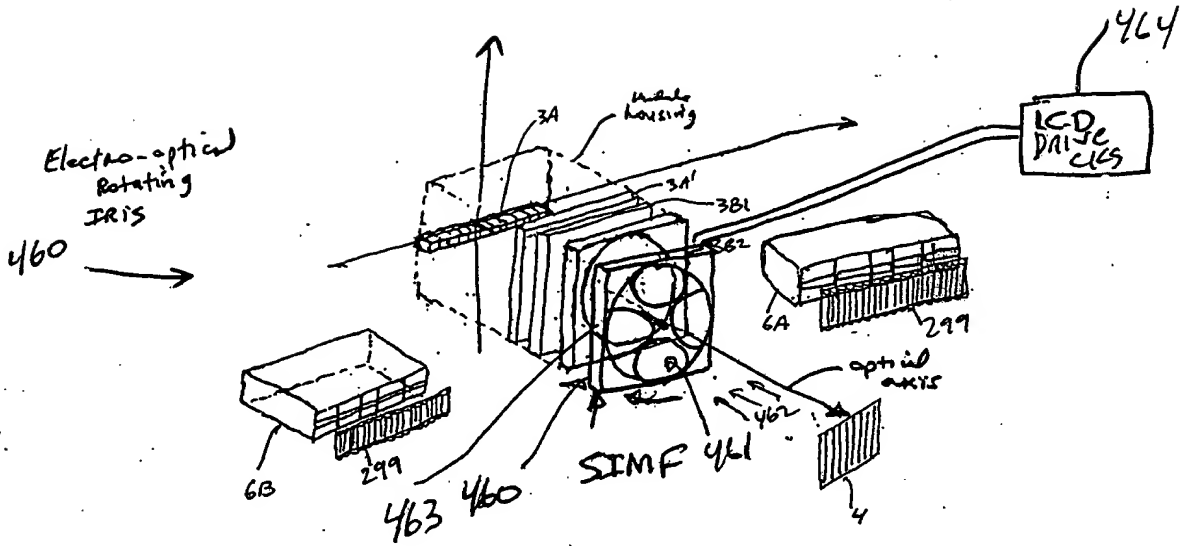


FIG. 1I 23A

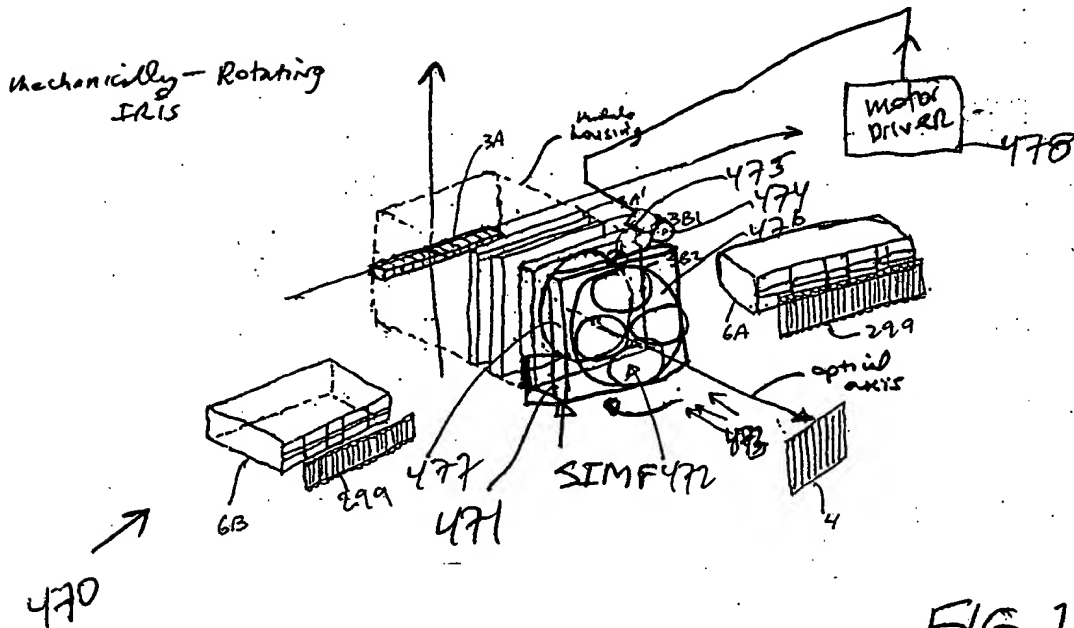
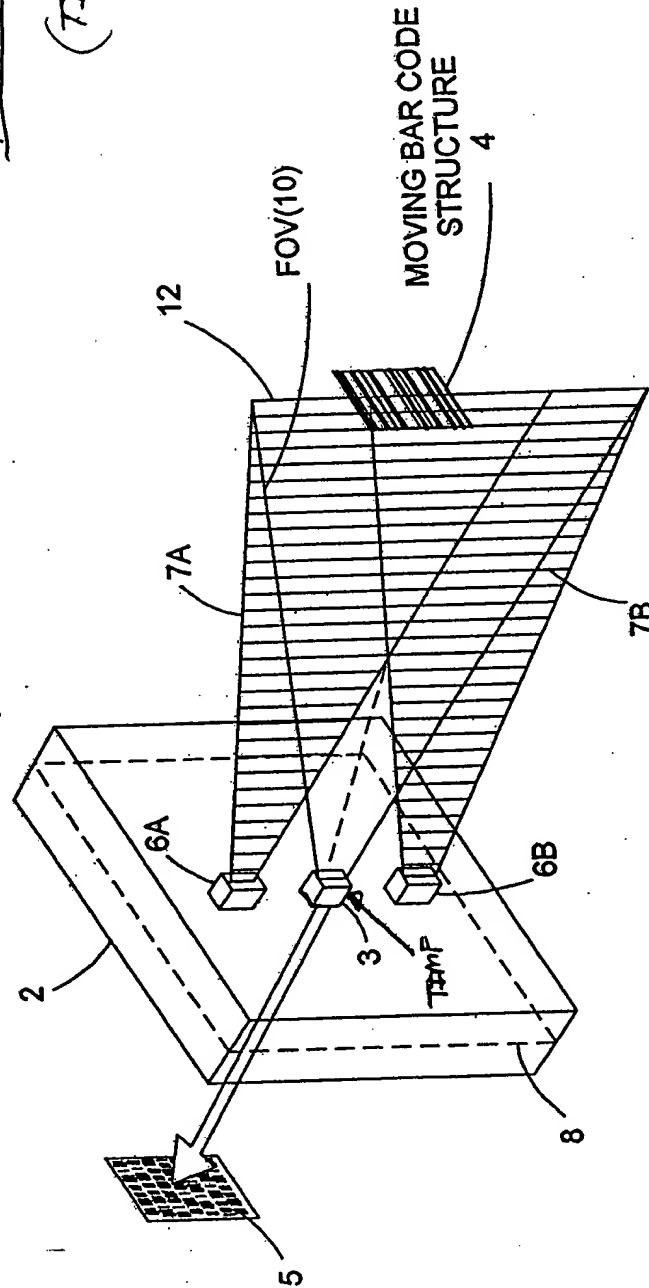


FIG. 1I 23B

Seventh Generalized Method of
Reducing Speckle - Noise Patterns
at Image Detection Array
of 76 IFD Subsystem

(TIME)



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FIG. 1124

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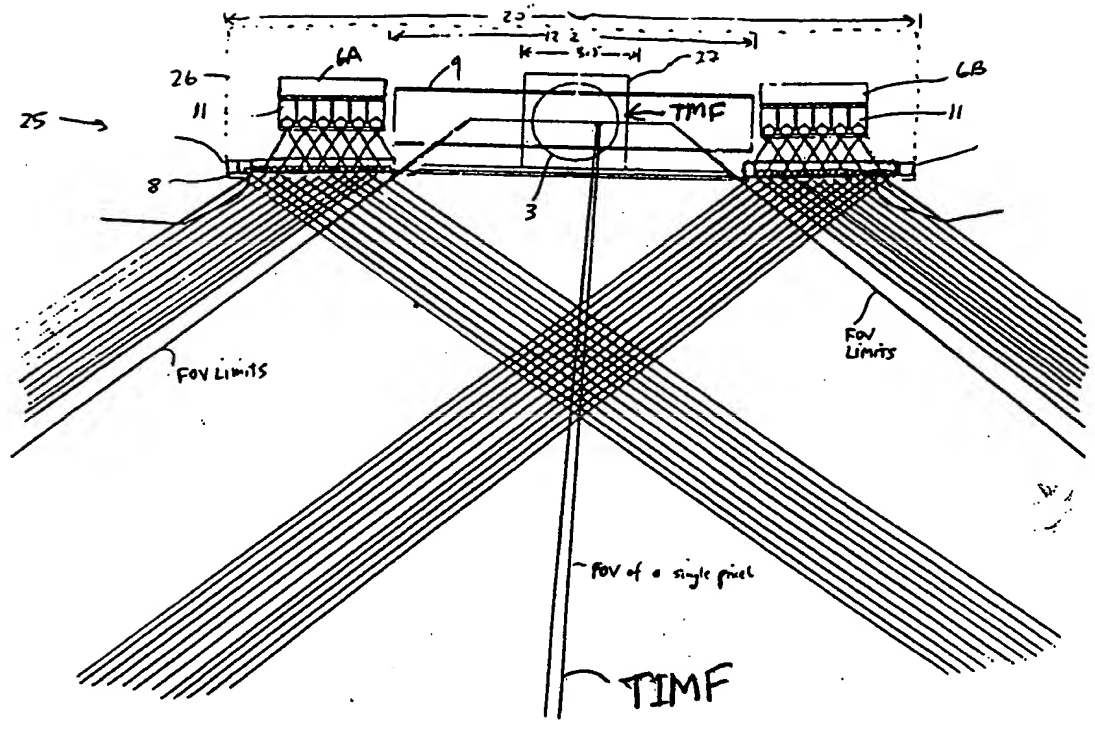


FIG. 1I24A

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Seventh Generalized Speckle-Noise Pattern Reduction Method
Of The Present Invention

After illumination of the target with the planar laser illumination beam (PLIB), modulate the temporal intensity of the reflected/scattered (i.e. received) PLIB along the planar extent thereof according to a temporal intensity modulation function (TIMF) so as to :

produce many substantially different time-varying speckle-noise patterns at the image detection array of the IFD Subsystem during the photo-integration time period thereof.

Temporally average the many substantially different time-varying speckle-noise patterns produced at the image detection array in the IFD Subsystem during the photo-integration time period thereof, so as to thereby reduce the speckle-noise pattern observed at the image detection array.

FIG. 1I 24B

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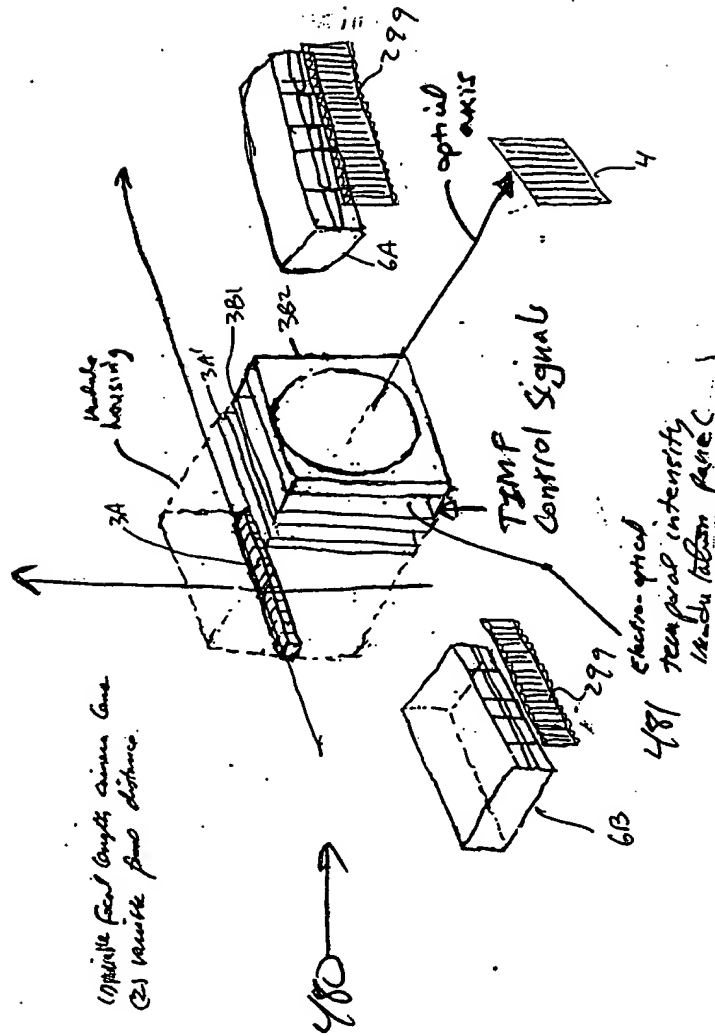


Fig 11 Z4C

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EIGHT GENERALIZED METHOD OF REDUCING THE SPECKLE PATTERN
NOISE OBSERVED IN PLIIM-BASED IMAGING SYSTEMS

- A Use a PLIIM-BASED Imager to produce a series of consecutively captured digital images of an object over a series of photo-integration time periods of the PLIIM-Based Imager, wherein each digital image of the object includes a substantially different speckle noise pattern produced by natural oscillatory micro-motion and/or forced oscillatory micro-movement of the Imager relative to the object during operation of the PLIIM-Based Imager.
- B Store the series of consecutively captured digital images of the object in buffer memory within the PLIIM-Based Imager.
- C Add relatively small (e.g. 3x3) windowed image processing filters to the additively combine and average the pixel data in the series of consecutively captured digital images so as to produce a reconstructed digital image having a speckle noise pattern with reduced RMS power.

FIG. 1124D

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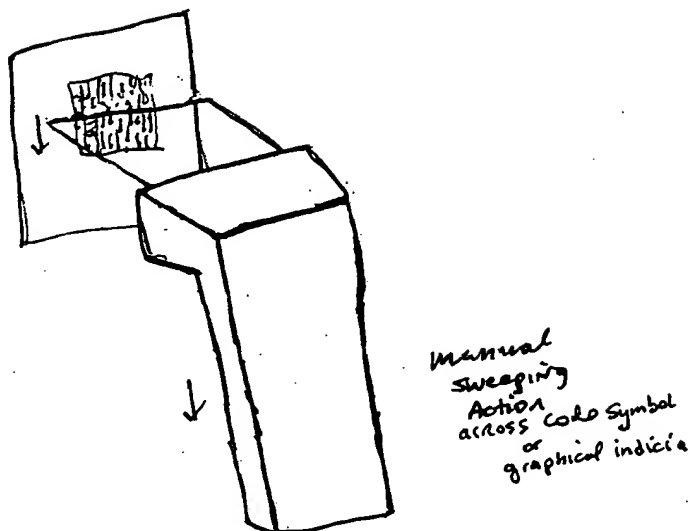
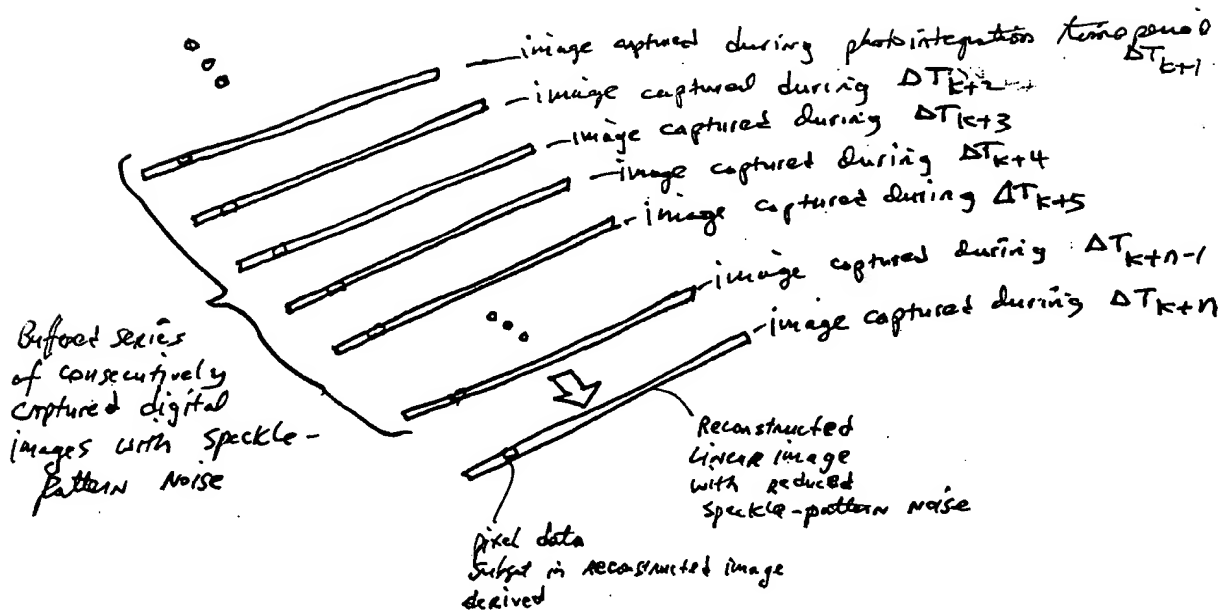


FIG. 1124E



case: Linear image

FIG. 1124F

131104	131105	131106	131107	131108	131109	131110	131111	131112	131113	131114	131115	131116	131117	131118	131119	131120	131121	131122	131123	131124	131125	131126	131127	131128	131129	131130	131131	131132	131133	131134	131135	131136	131137	131138	131139	131140	131141	131142	131143	131144	131145	131146	131147	131148	131149	131150	131151	131152	131153	131154	131155	131156	131157	131158	131159	131160	131161	131162	131163	131164	131165	131166	131167	131168	131169	131170	131171	131172	131173	131174	131175	131176	131177	131178	131179	131180	131181	131182	131183	131184	131185	131186	131187	131188	131189	131190	131191	131192	131193	131194	131195	131196	131197	131198	131199	131200
131104	131105	131106	131107	131108	131109	131110	131111	131112	131113	131114	131115	131116	131117	131118	131119	131120	131121	131122	131123	131124	131125	131126	131127	131128	131129	131130	131131	131132	131133	131134	131135	131136	131137	131138	131139	131140	131141	131142	131143	131144	131145	131146	131147	131148	131149	131150	131151	131152	131153	131154	131155	131156	131157	131158	131159	131160	131161	131162	131163	131164	131165	131166	131167	131168	131169	131170	131171	131172	131173	131174	131175	131176	131177	131178	131179	131180	131181	131182	131183	131184	131185	131186	131187	131188	131189	131190	131191	131192	131193	131194	131195	131196	131197	131198	131199	131200

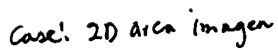
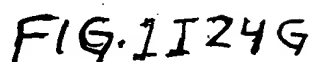


FIG 1I24H

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NINTH GENERALIZED METHOD OF REDUCING SPECKLE PATTERN
NOISE IN PLIIM-BASED IMAGING SYSTEMS

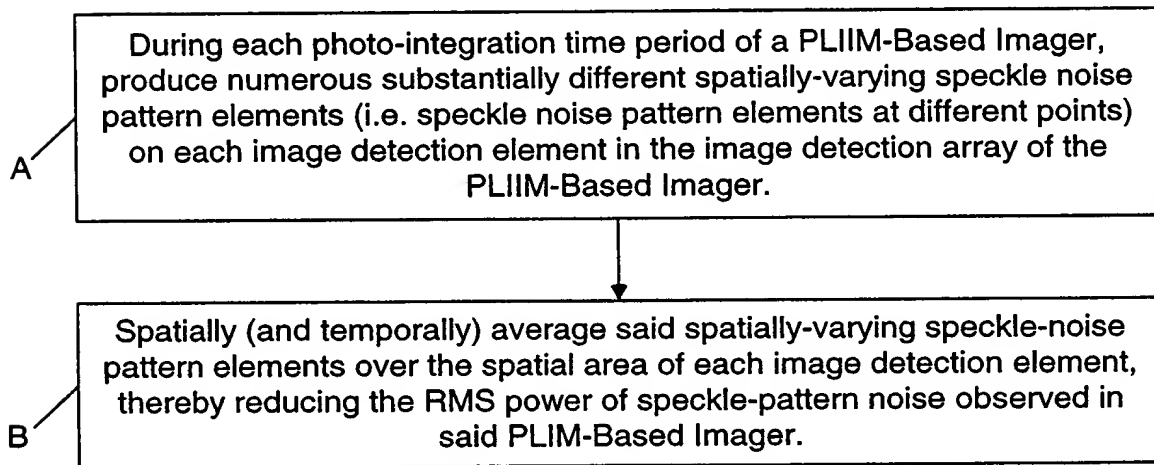
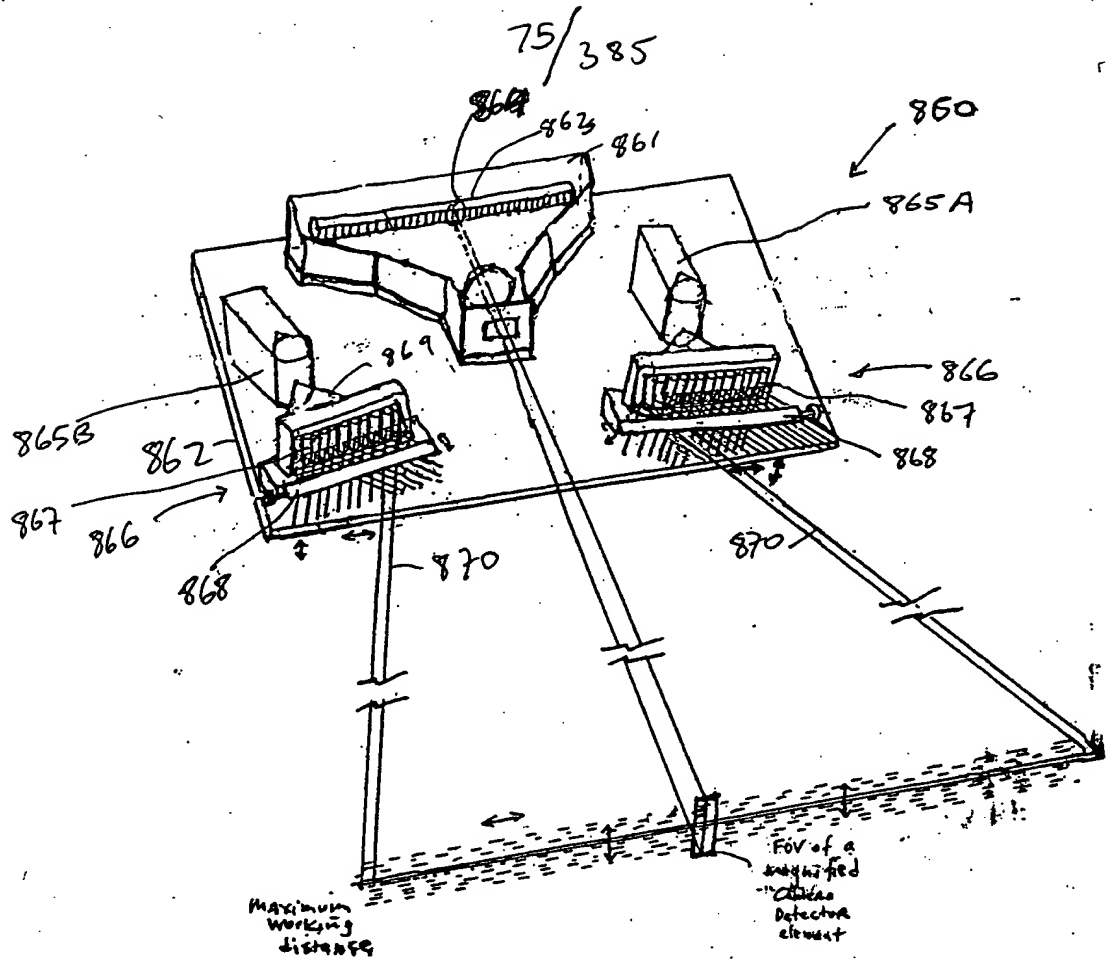


FIG. 1124I

FIG. 1I25A1



* Lateral and Transverse Misalignment of PLIB

FIG. 1I25A1

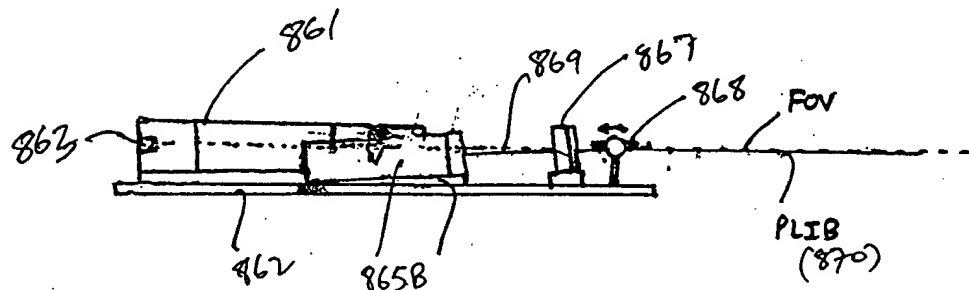


FIG. 1I25A2

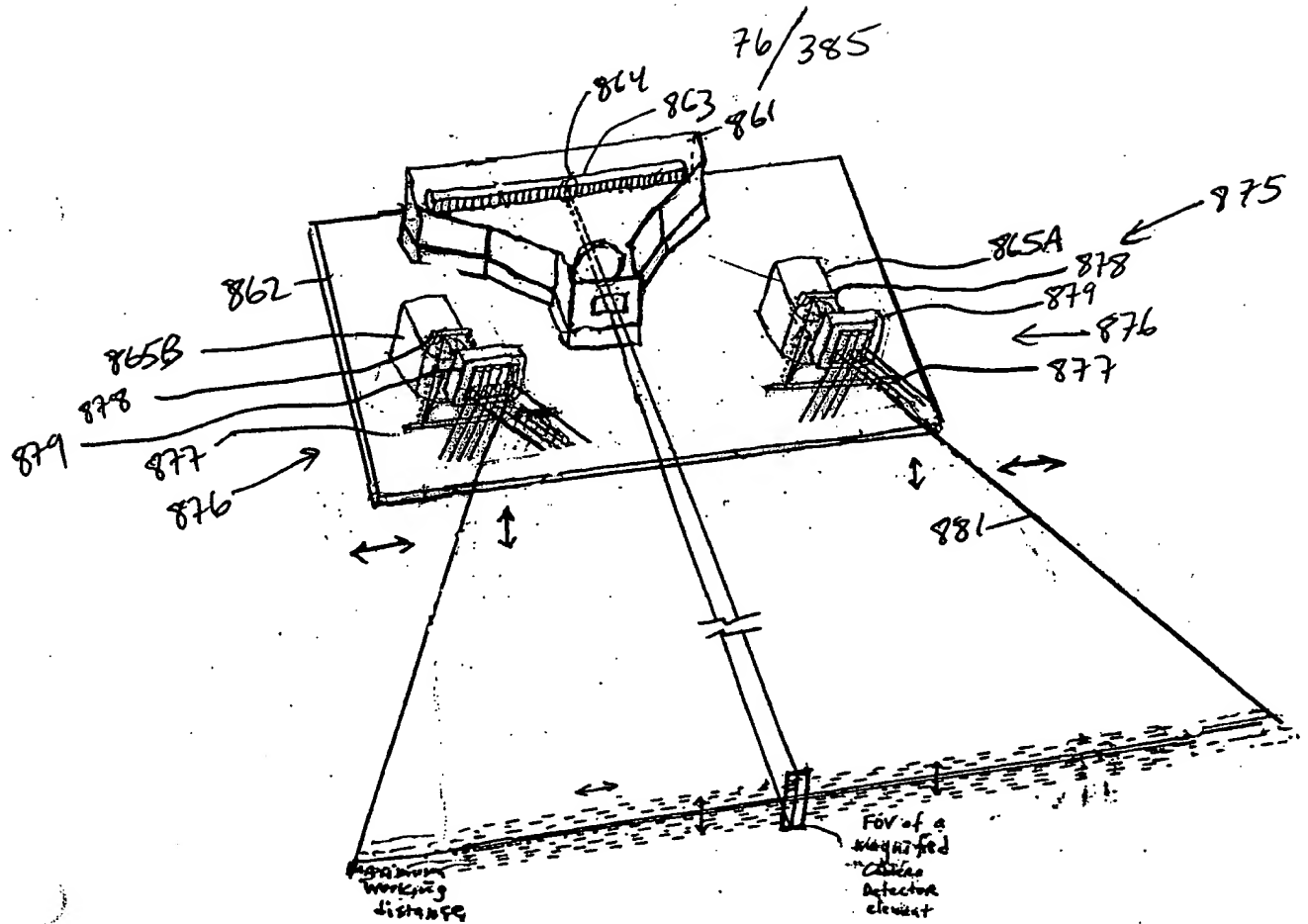


FIG. 1 I 25 B 1

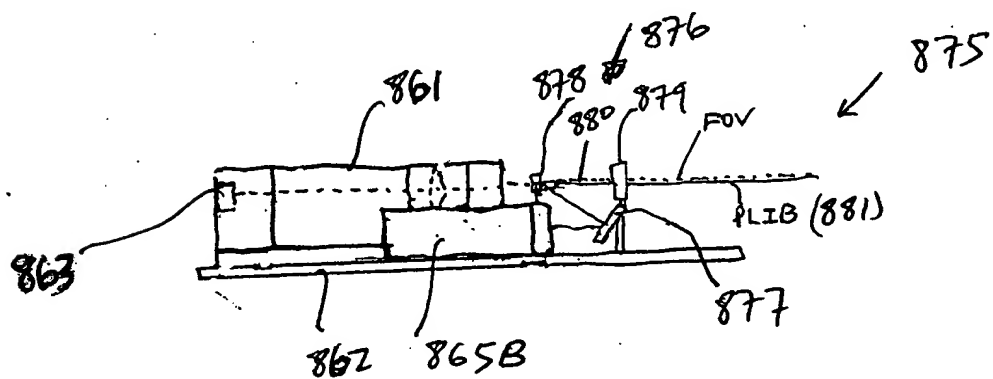
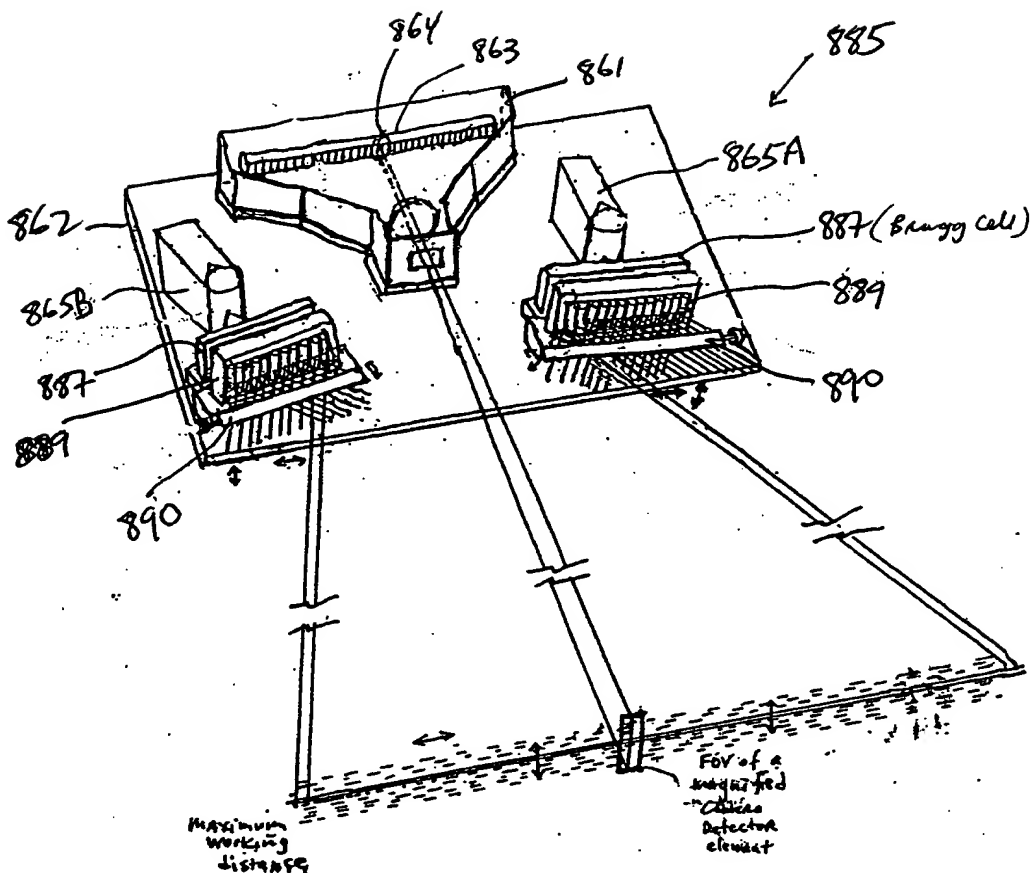


FIG. 1I 25B2

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* Lateral and Transverse Microoscillation of PLIB

FIG. 1I25C1

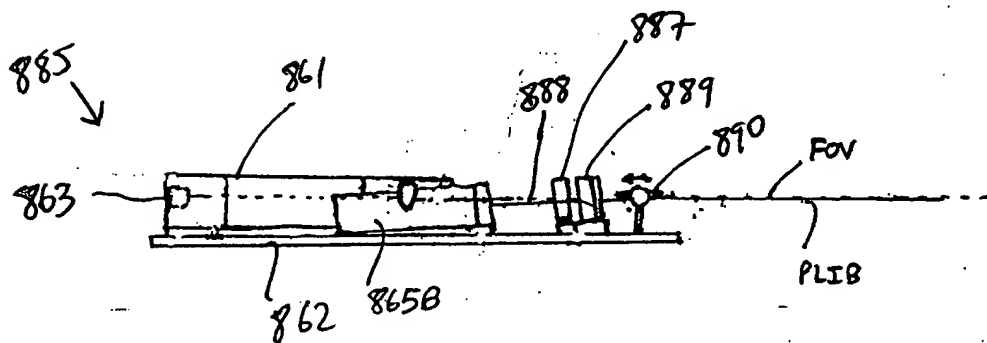


FIG. 1I25C2

09990585 112101

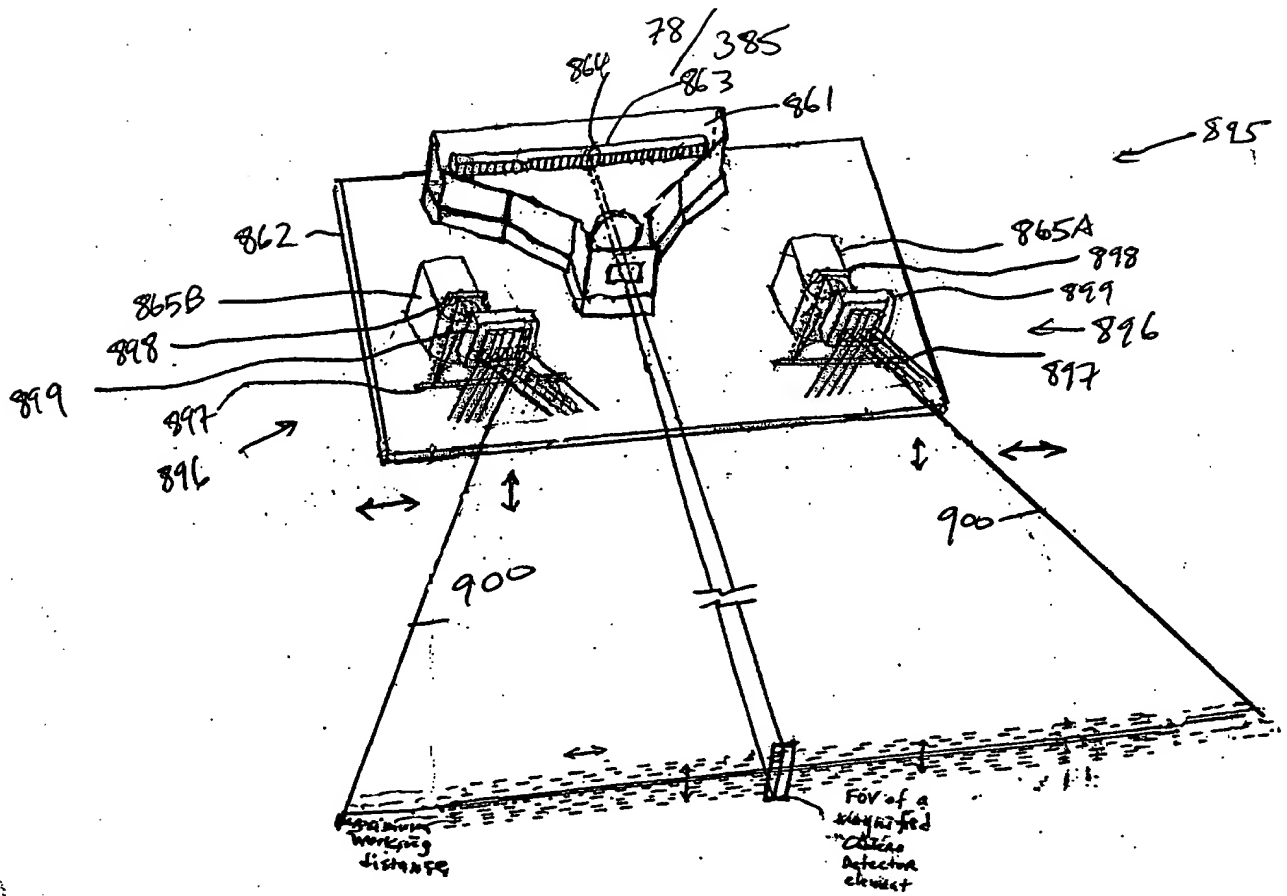


FIG. 1 I 25 D1

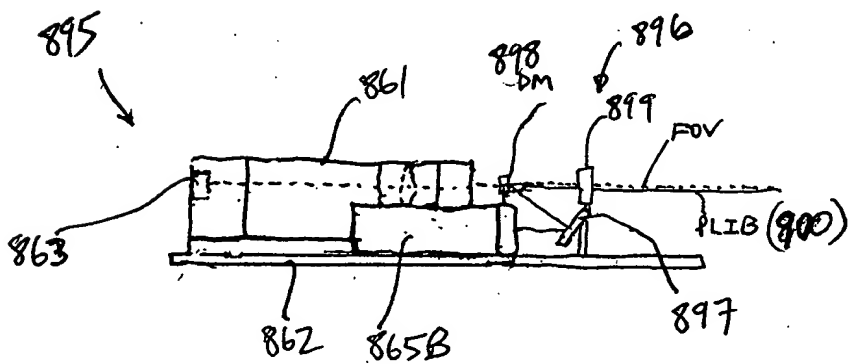
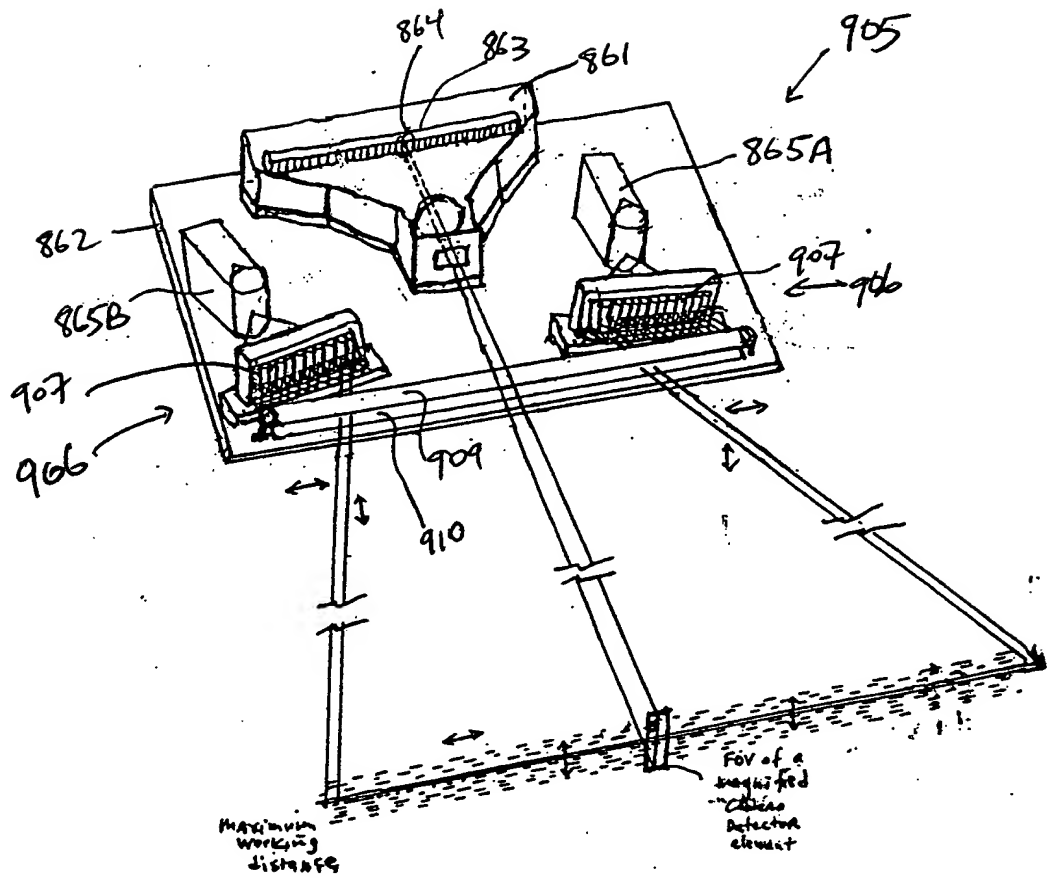


FIG. 1 I 25 D2

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* Lateral and Transverse Misalignment of PLIB

905

FIG. 1I25E1

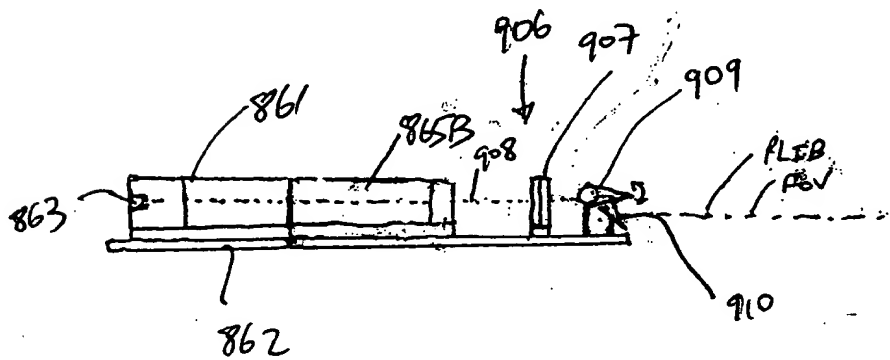
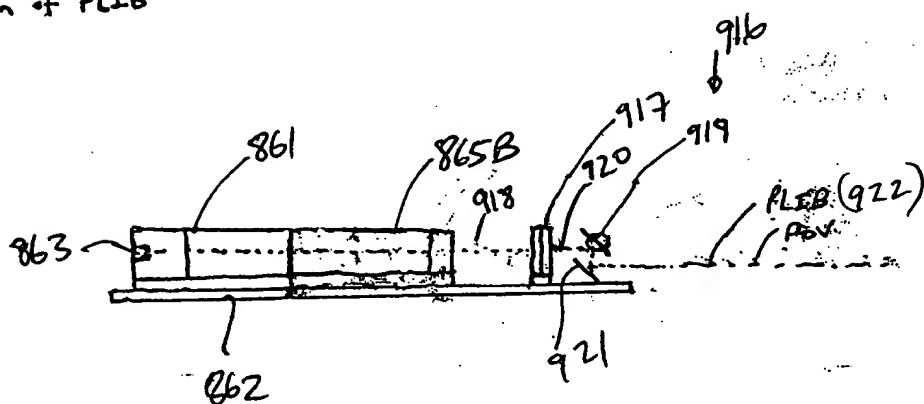
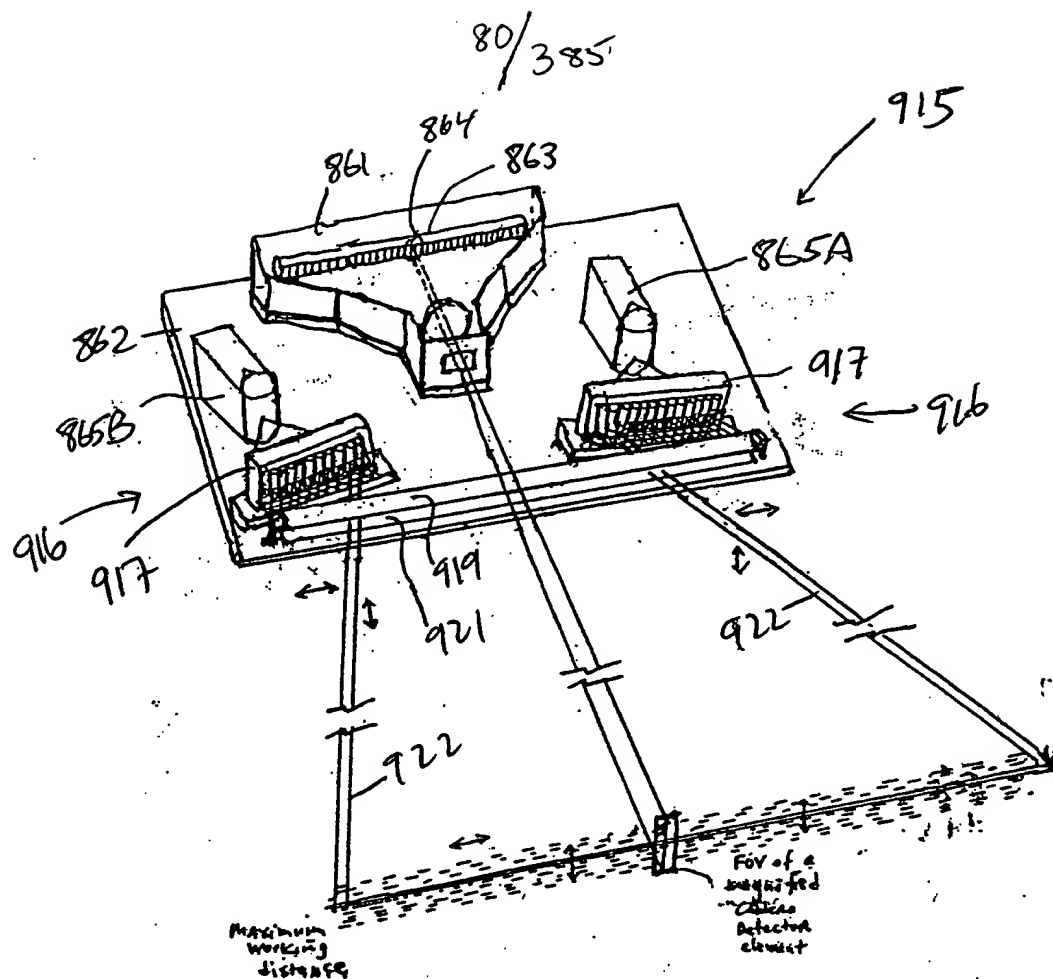


FIG. 1I25E2



[illegible]

925

FIG. 1I 25G2

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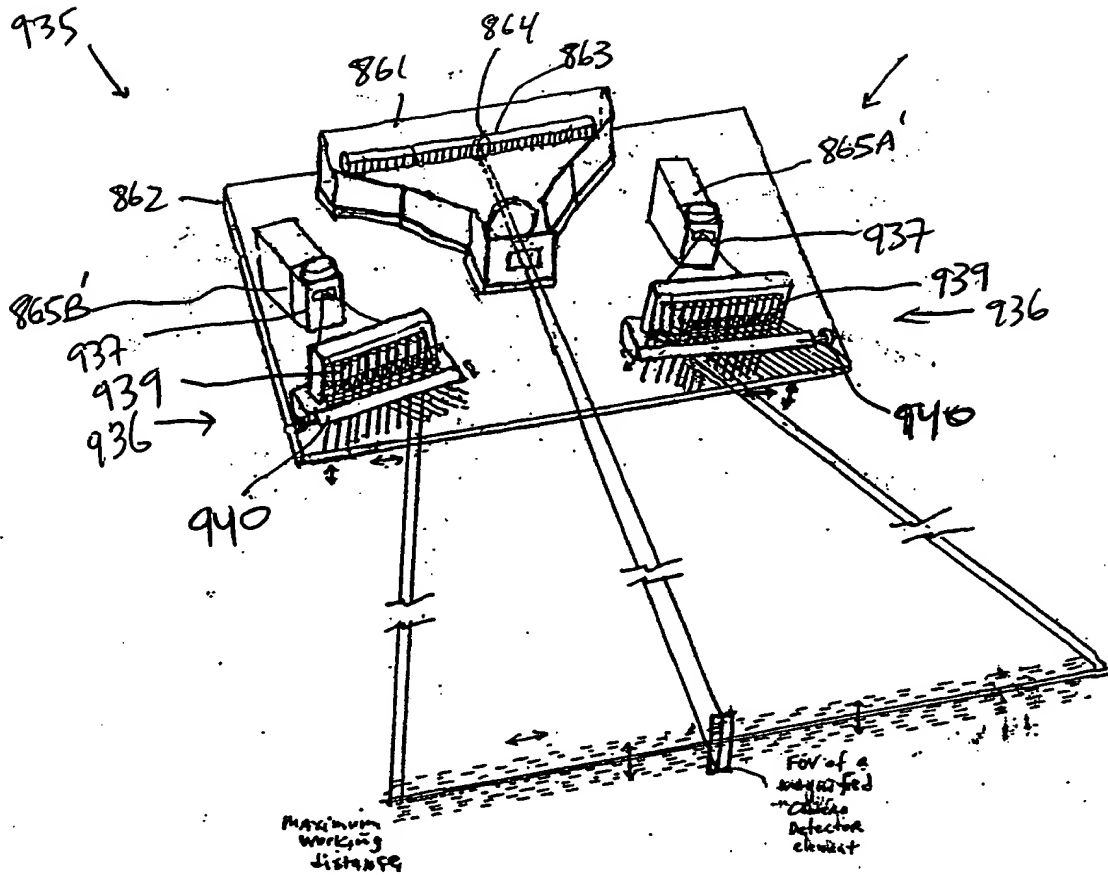


FIG. 1I25H1

* Lateral and Transverse Microoscillation of PLIB

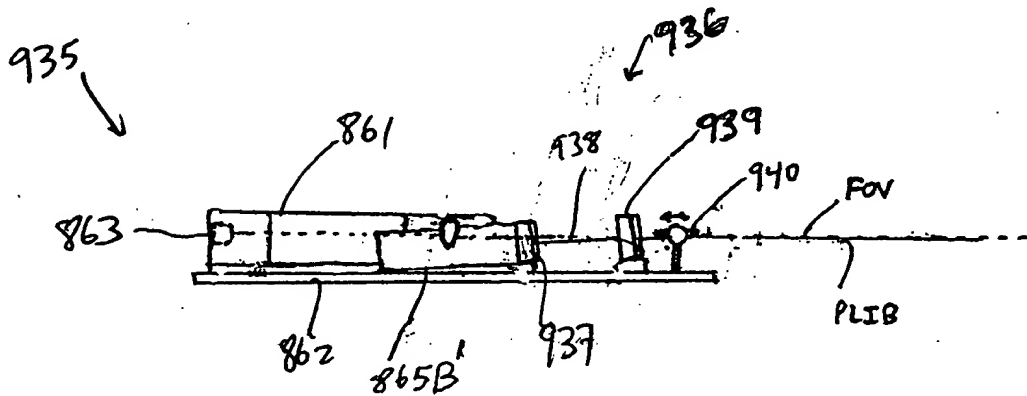
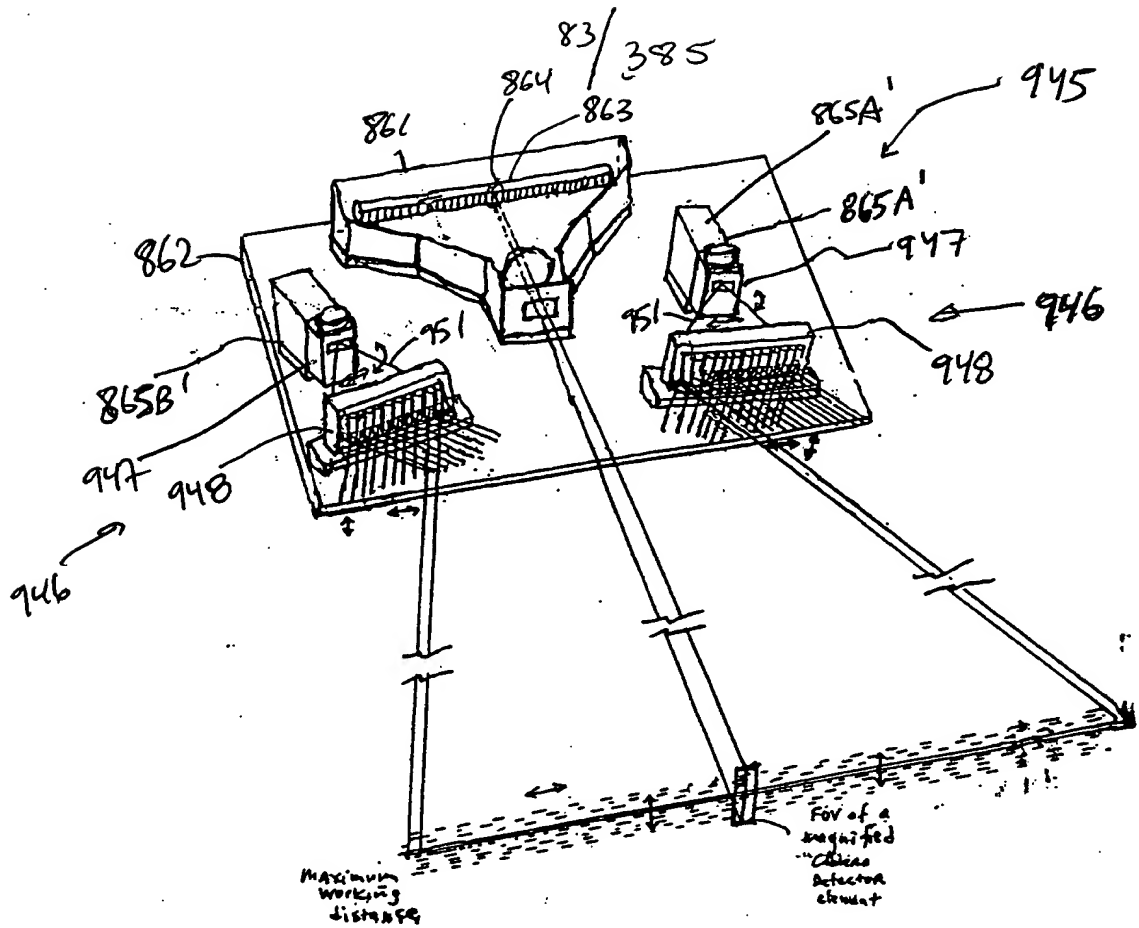


FIG. 1I25H2



Lateral and Transverse Misalignment of ALB

FIG. 1I25I1

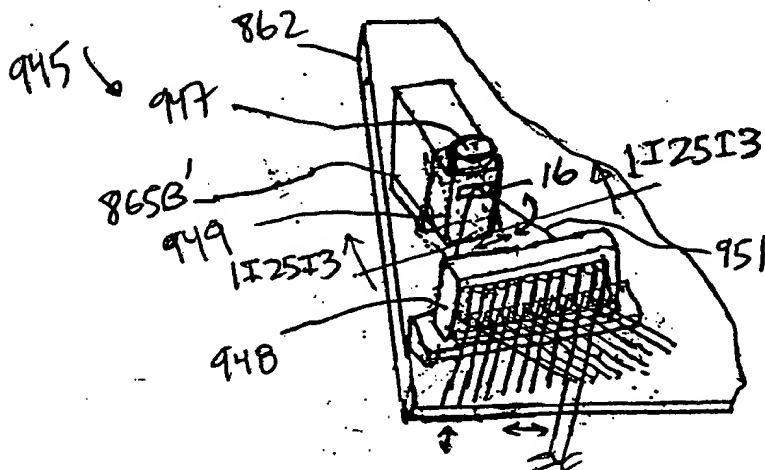


FIG. 1I25I2

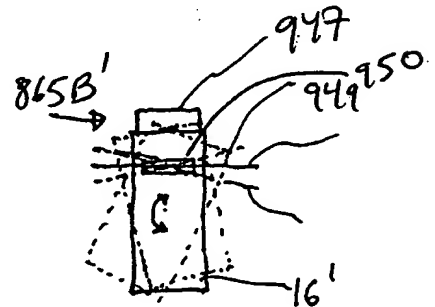


FIG. 1I25I3

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955

861

864

863

865A

957 optical shutter

958

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959

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958

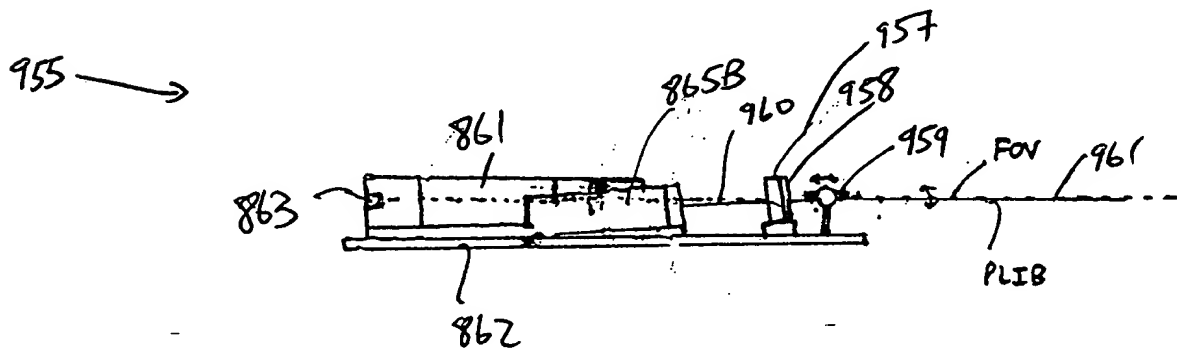
959

FOV of a magnified retinal detector element

Maximum working distance

* hybrid technique:

- Temporal intensity modulation
- spatial modulation in transverse direction



- Hybrid Technique:
 - Temporal Intensity mod.
 - Spatial phase mod.

- Temporal Intensity and.

- spatial phase mod.

*

TRANSVERSE
VIBROSCILLATION OF PLIB

Microanalysis of PLIG

965

FIG. 1 IZ5K1

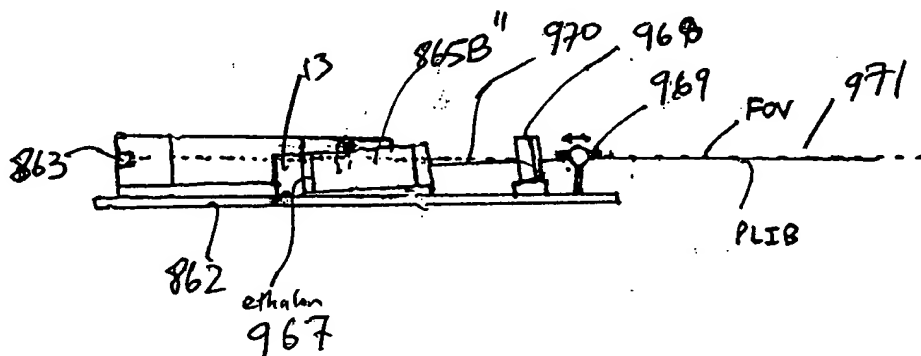
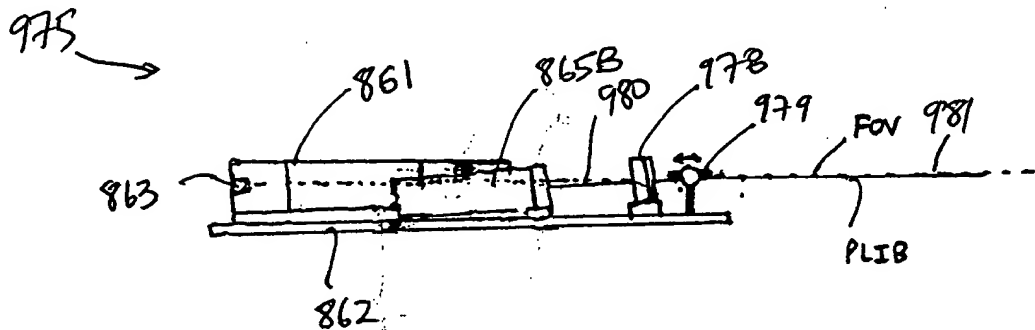
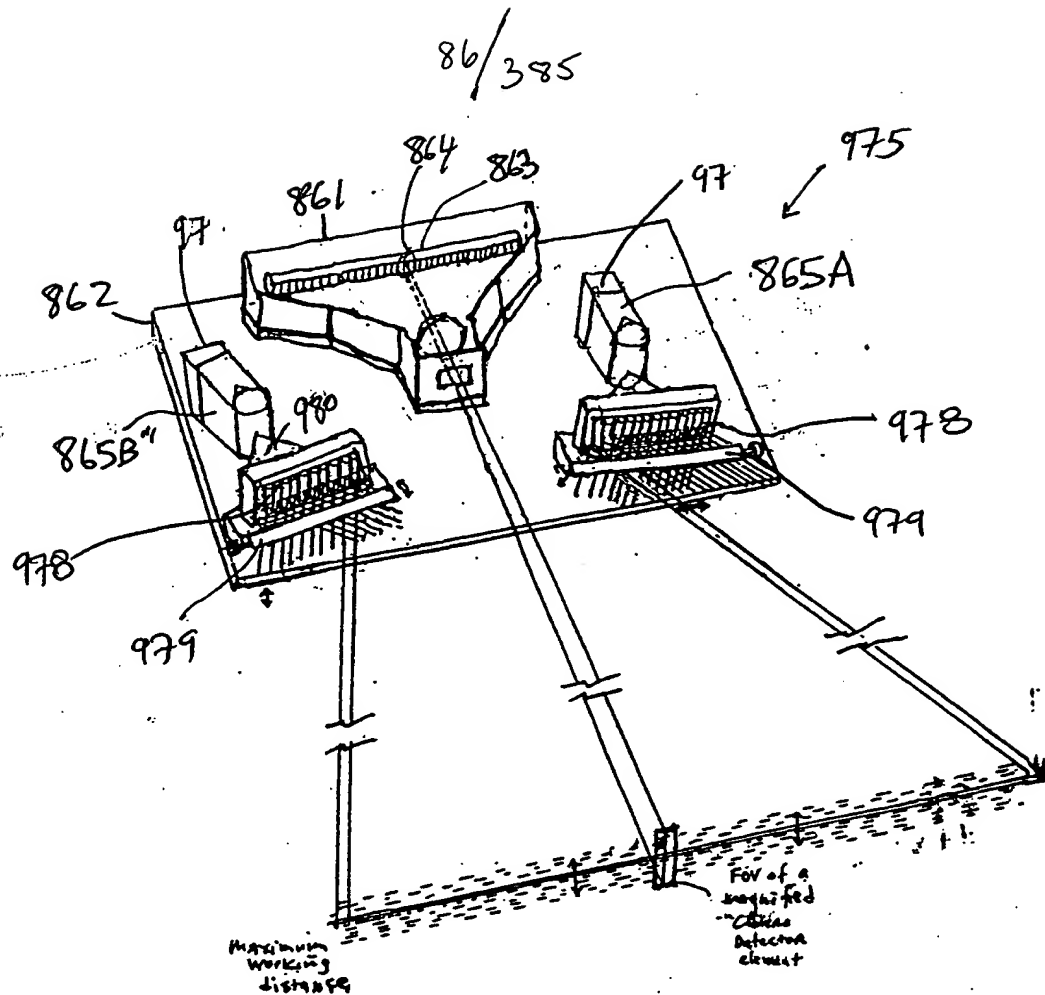


FIG. 1I 25KZ

- * hybrid =
 - temp freq. mod.
 - spatial phase mod.
- * Transverse
vibration of PLB



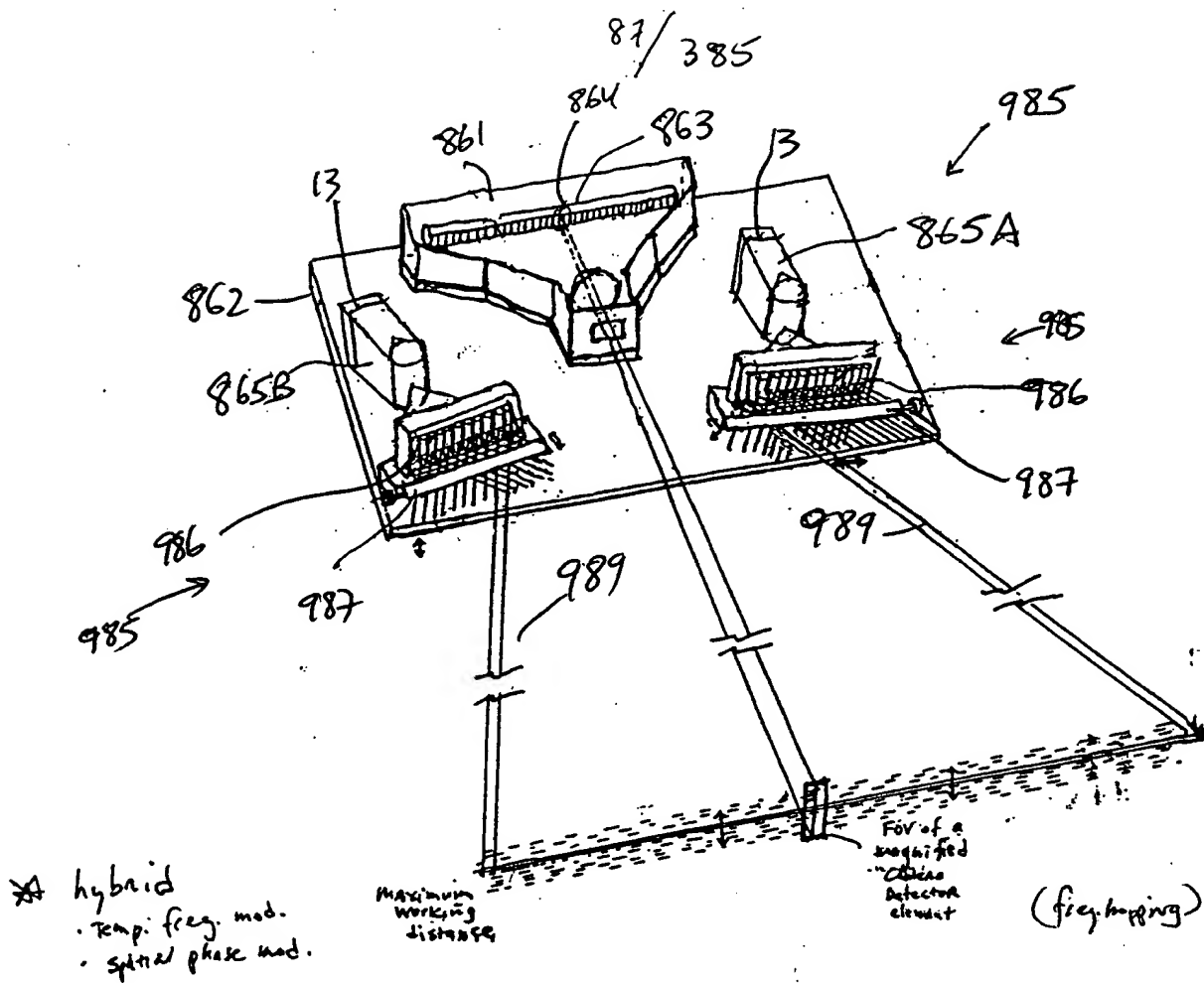


FIG. 1I25M1

* Transverse
 Microoscillation of PLIB

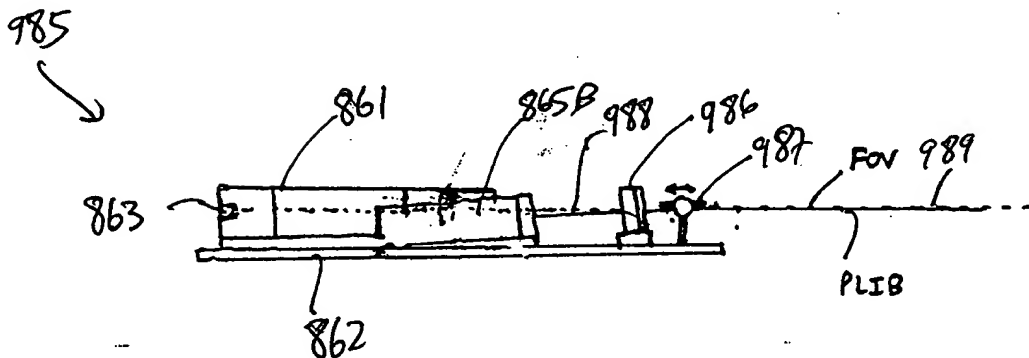
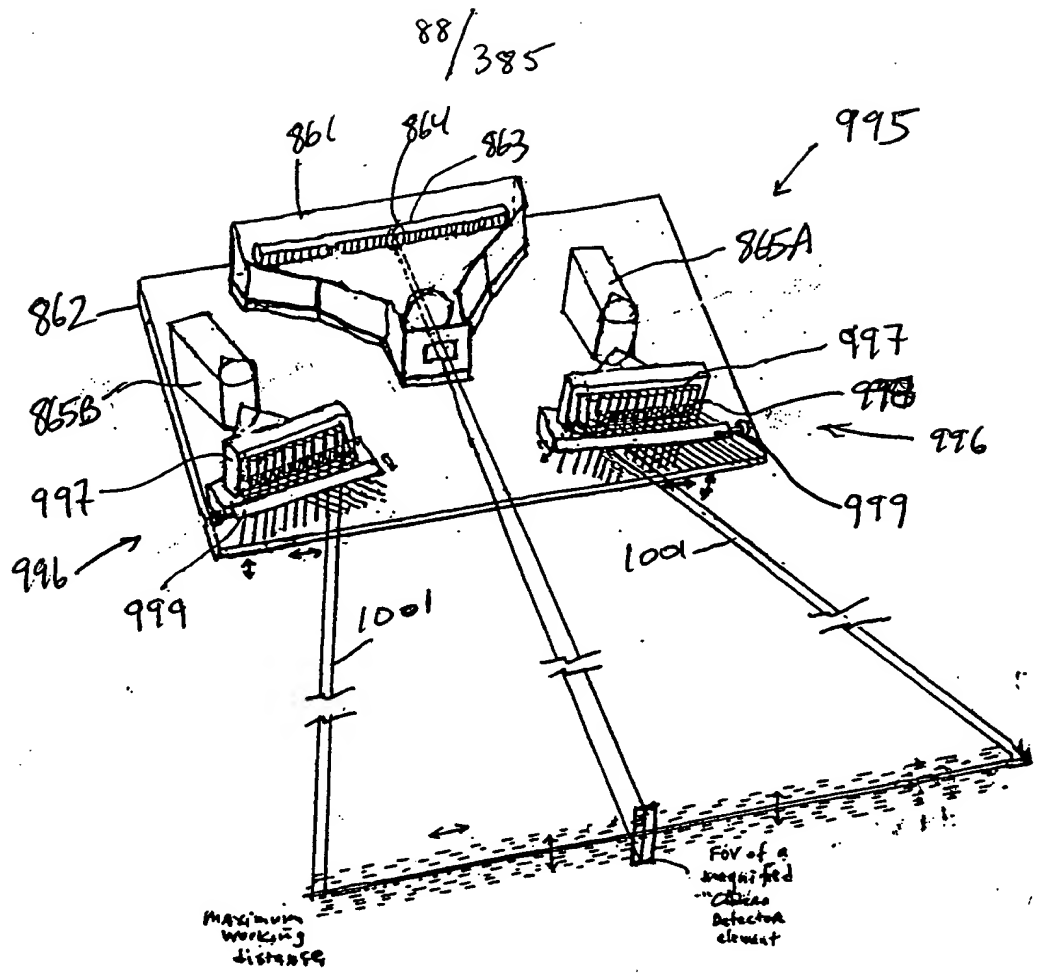


FIG. 1I25M2



hybrid:

- spatial intensity mod.
- spatial phase

* Lateral and Transverse Modulation of PLIB

FIG. 1I25N1

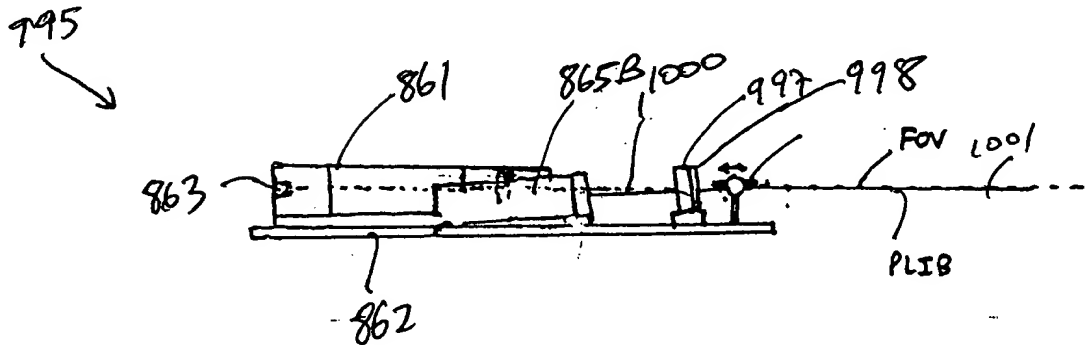


FIG. 1I25NZ

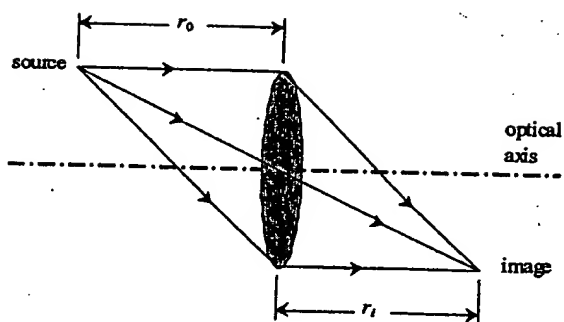
[illegible]

FIG. 141

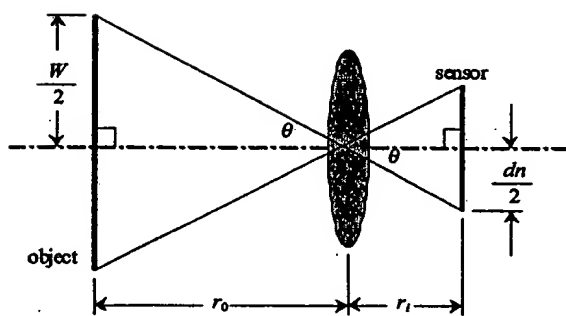


FIG. 1H2

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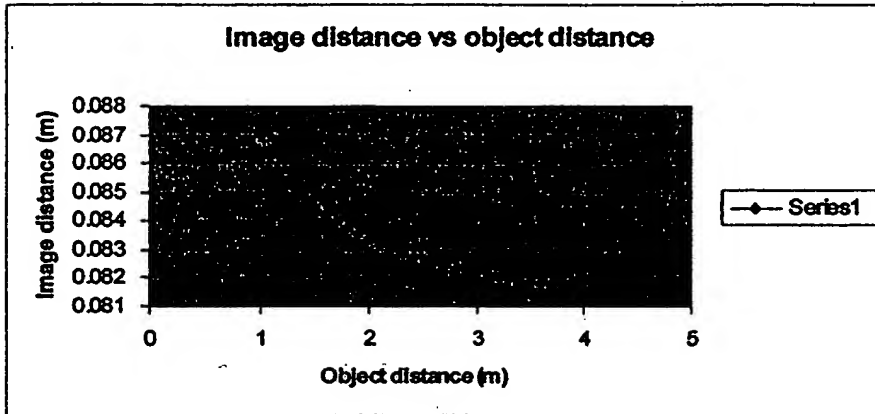


FIG. 1H3

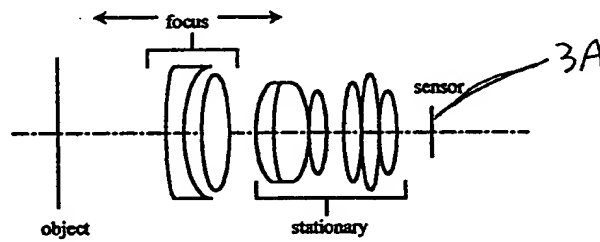


FIG. 1H4

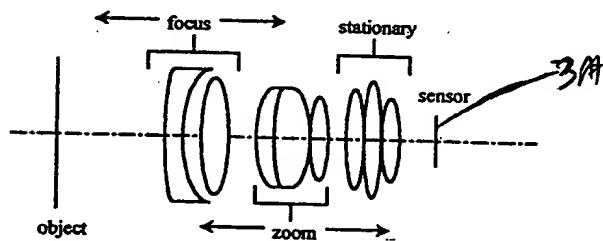
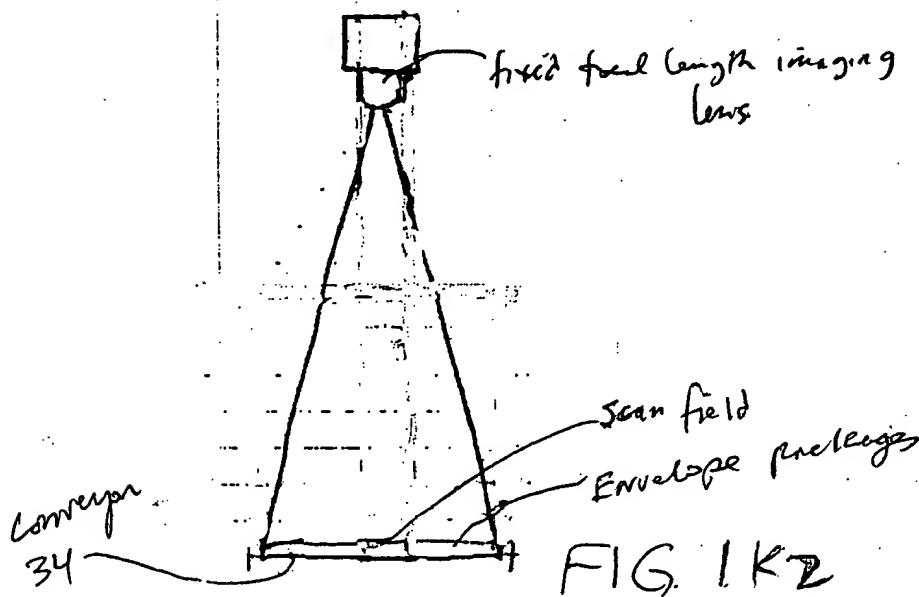
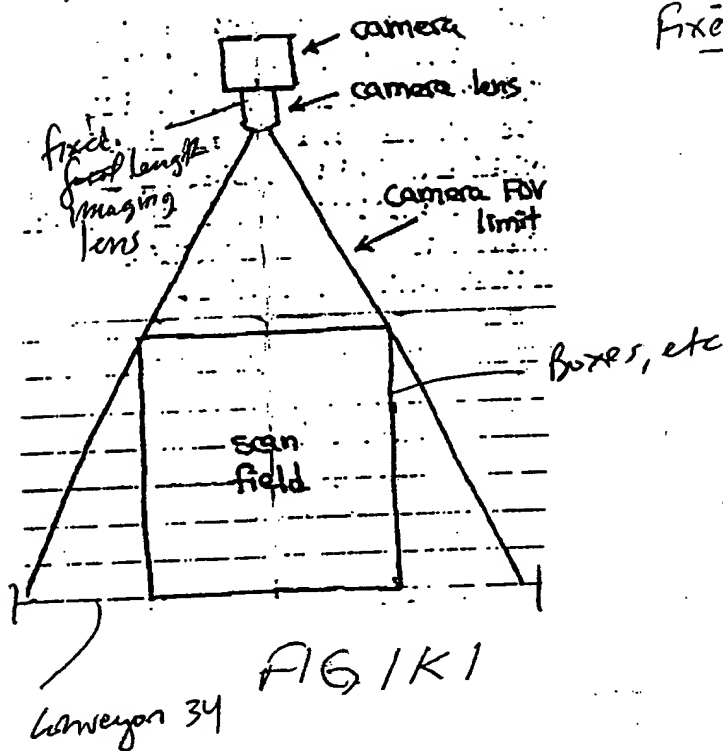


FIG. 1H5

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Fixed focal length lens
cases



100

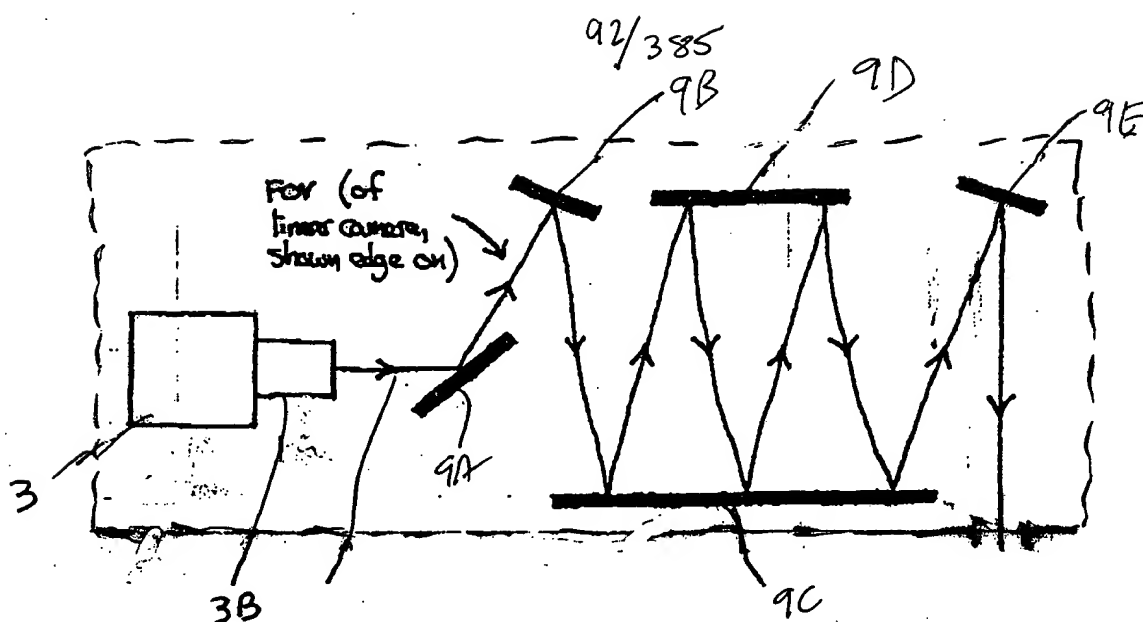


FIG. 1L1

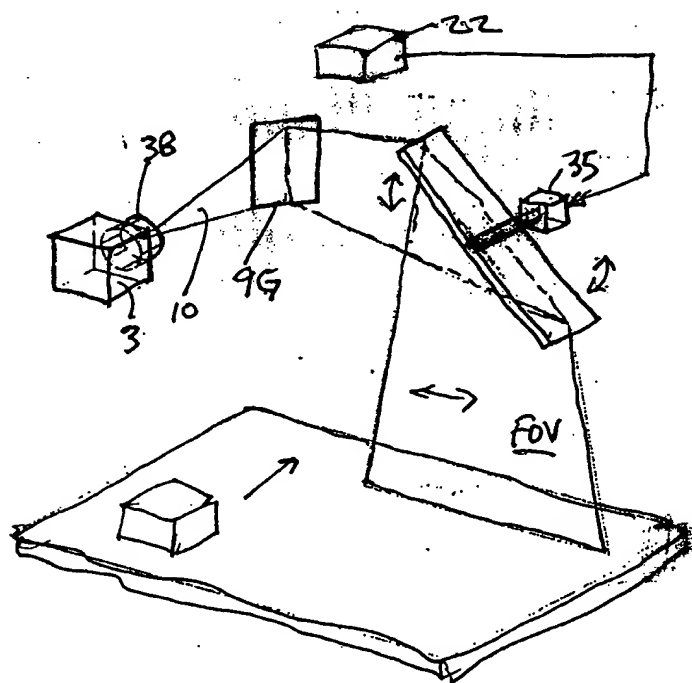


FIG. 1L2

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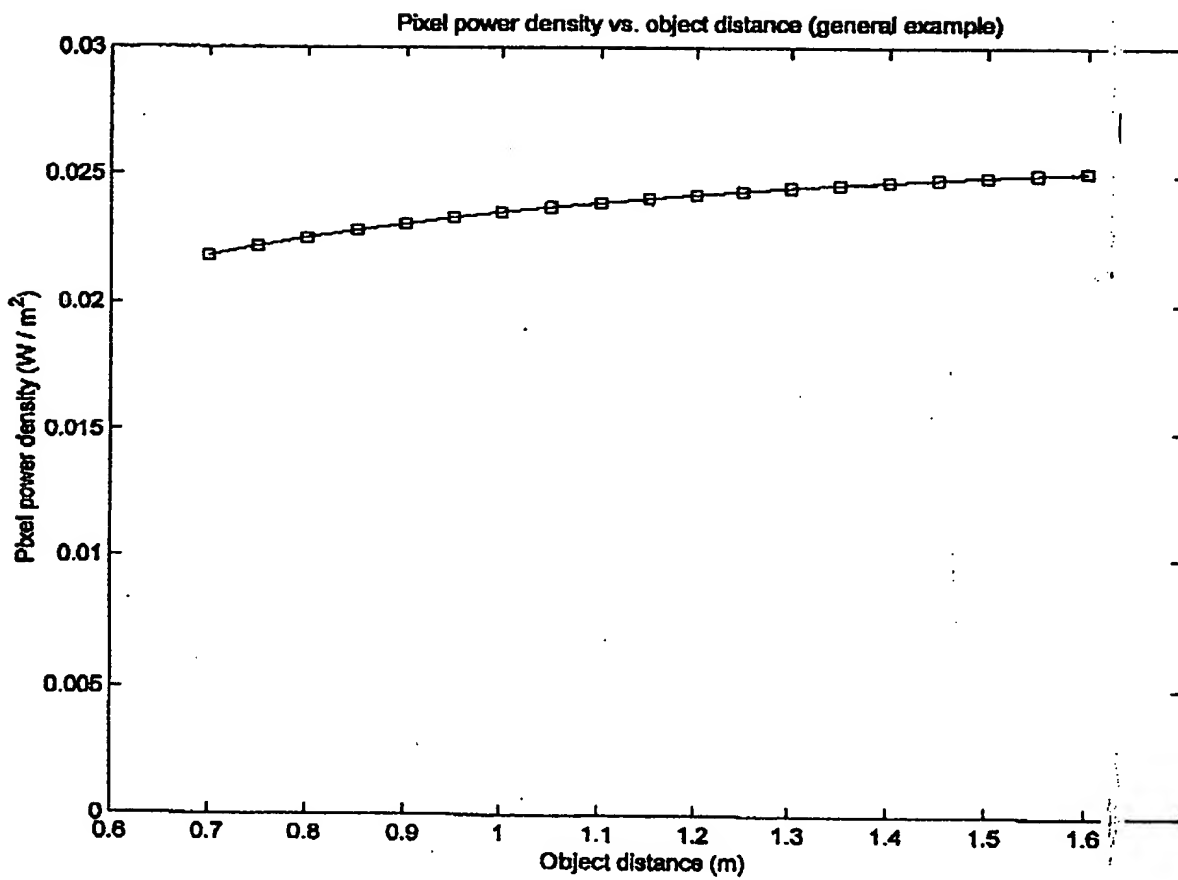


FIG-1M1

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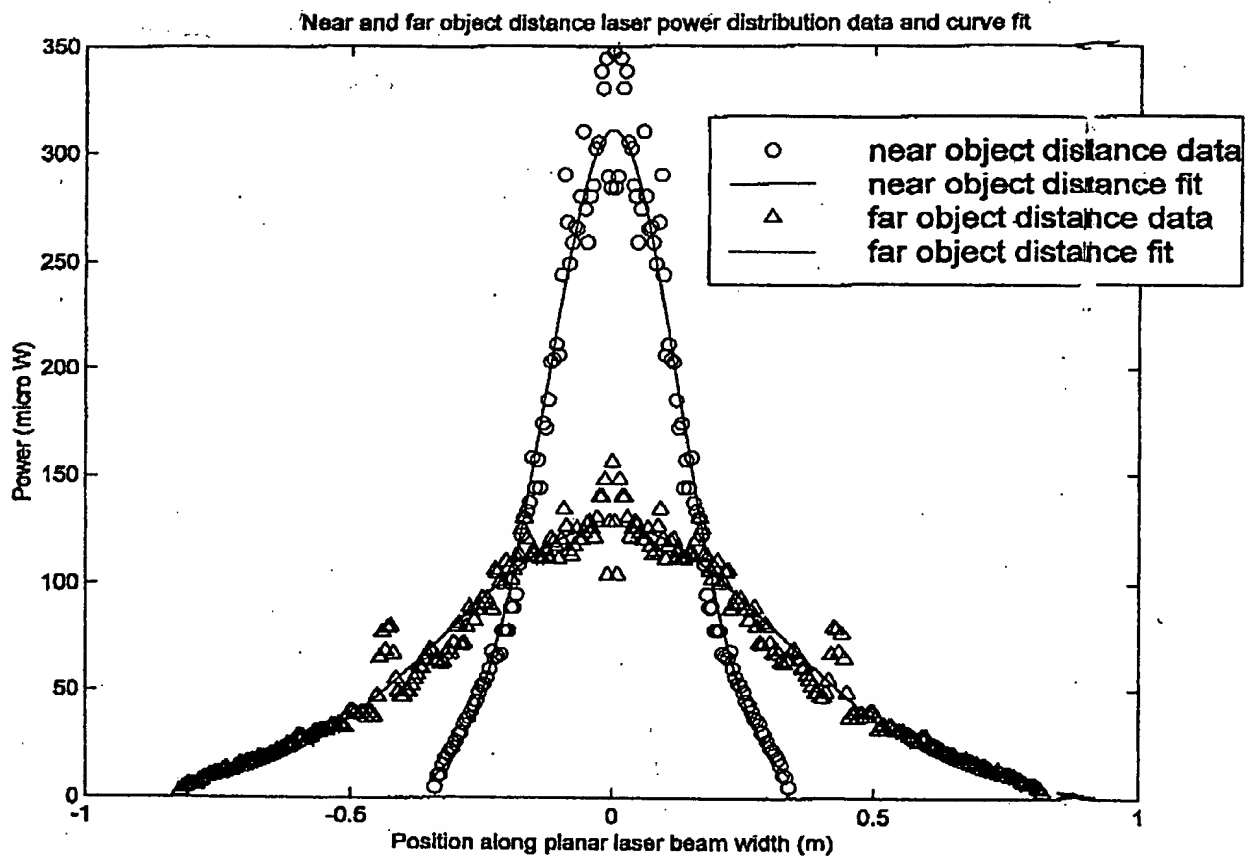


FIG. 1M2

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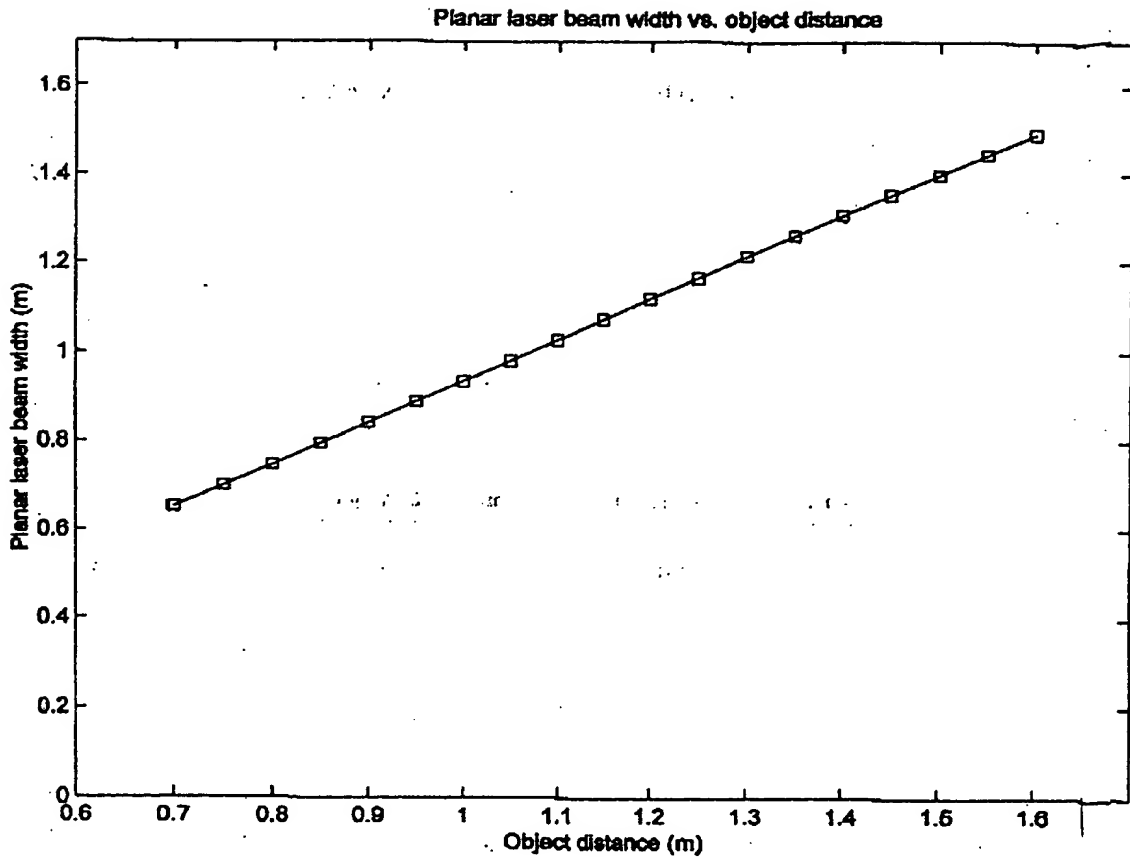


FIG. 1M3

12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100											
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100

Figure 1 is a line graph showing the relationship between Planar laser beam height (mm) on the Y-axis and Object distance (m) on the X-axis. The Y-axis ranges from 0 to 1.6 mm with major ticks every 0.2 mm. The X-axis ranges from 0.6 to 1.6 m with major ticks every 0.1 m. The data points, represented by open squares, show a decreasing trend in beam height as object distance increases, starting at approximately 1.6 mm at 0.7 m and leveling off around 0.55 mm at 1.6 m.

Object distance (m)	Planar laser beam height (mm)
0.72	1.58
0.78	1.52
0.84	1.45
0.88	1.37
0.92	1.28
0.96	1.21
1.02	1.13
1.08	1.07
1.12	1.00
1.18	0.92
1.22	0.84
1.26	0.78
1.32	0.73
1.36	0.67
1.42	0.62
1.48	0.58
1.52	0.55
1.58	0.54
1.62	0.54

FIG 1M4

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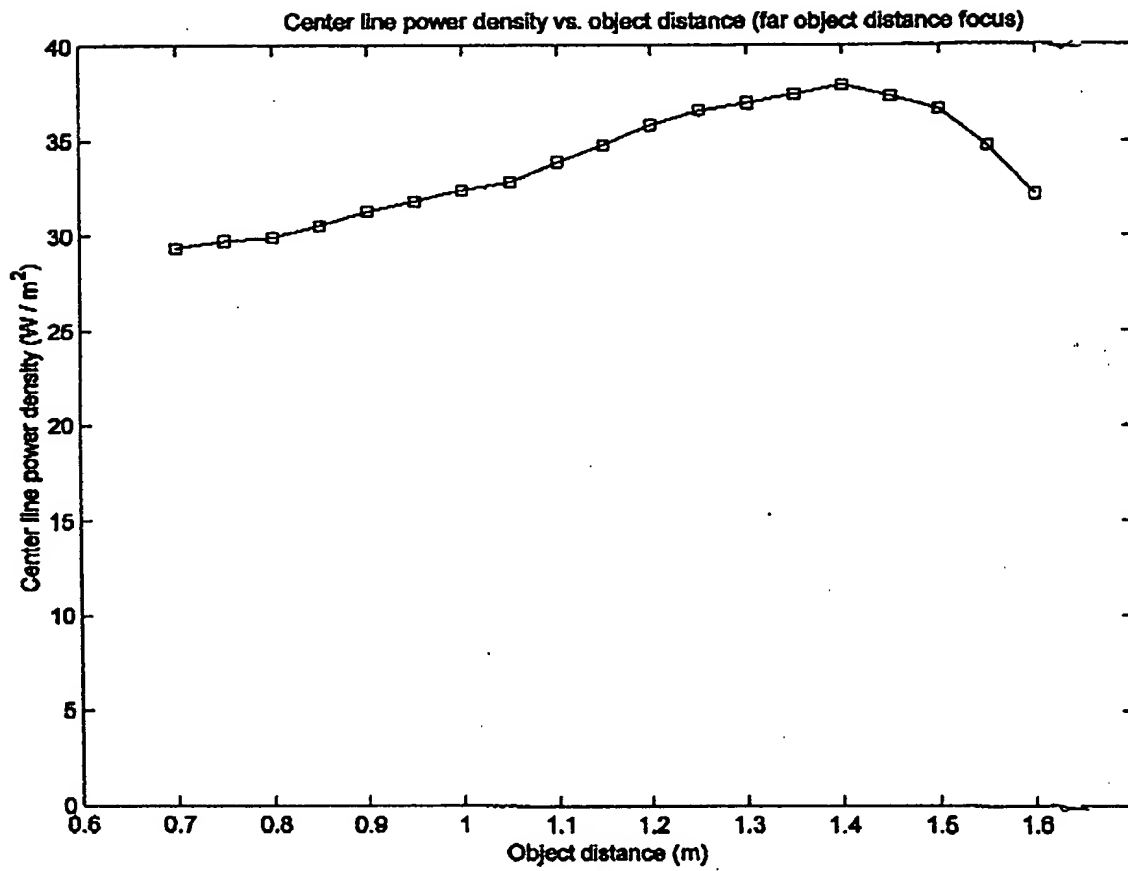


FIG. 1N

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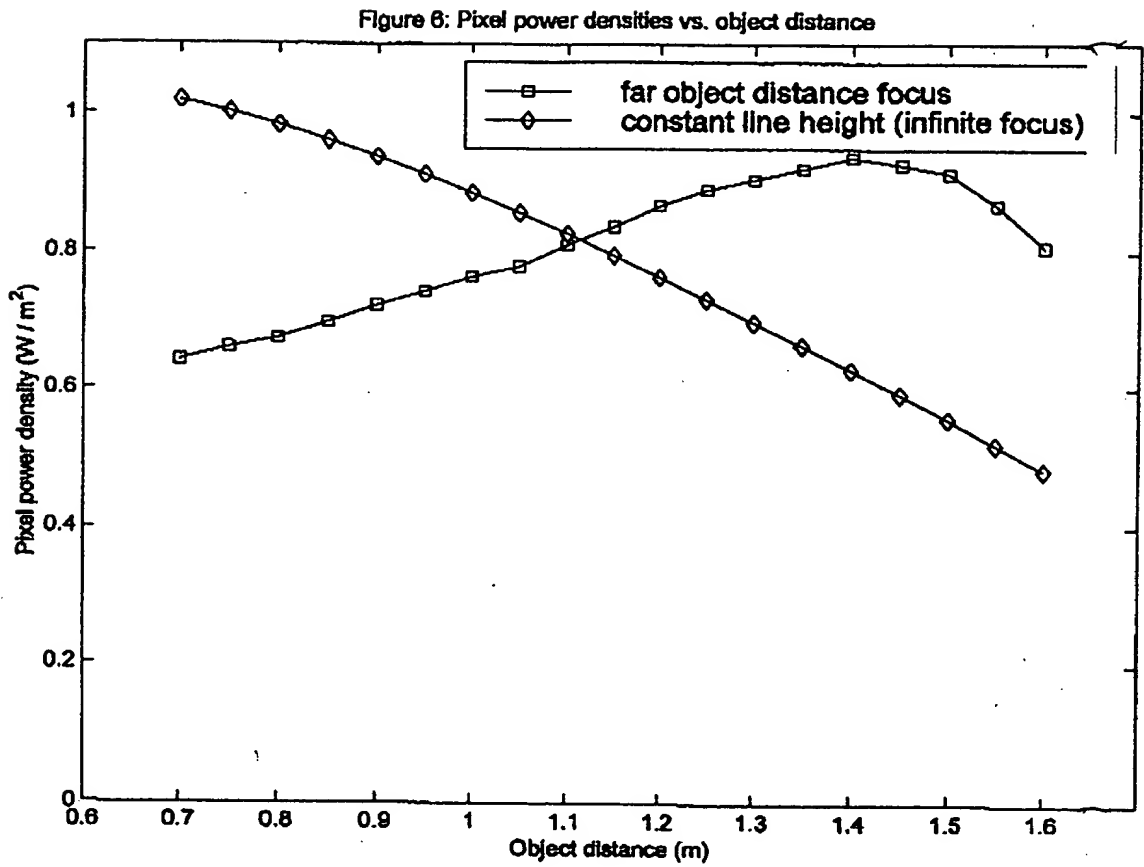
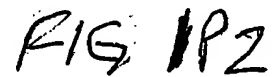


FIG. 10

[illegible]

21.

FIG. 10QZ

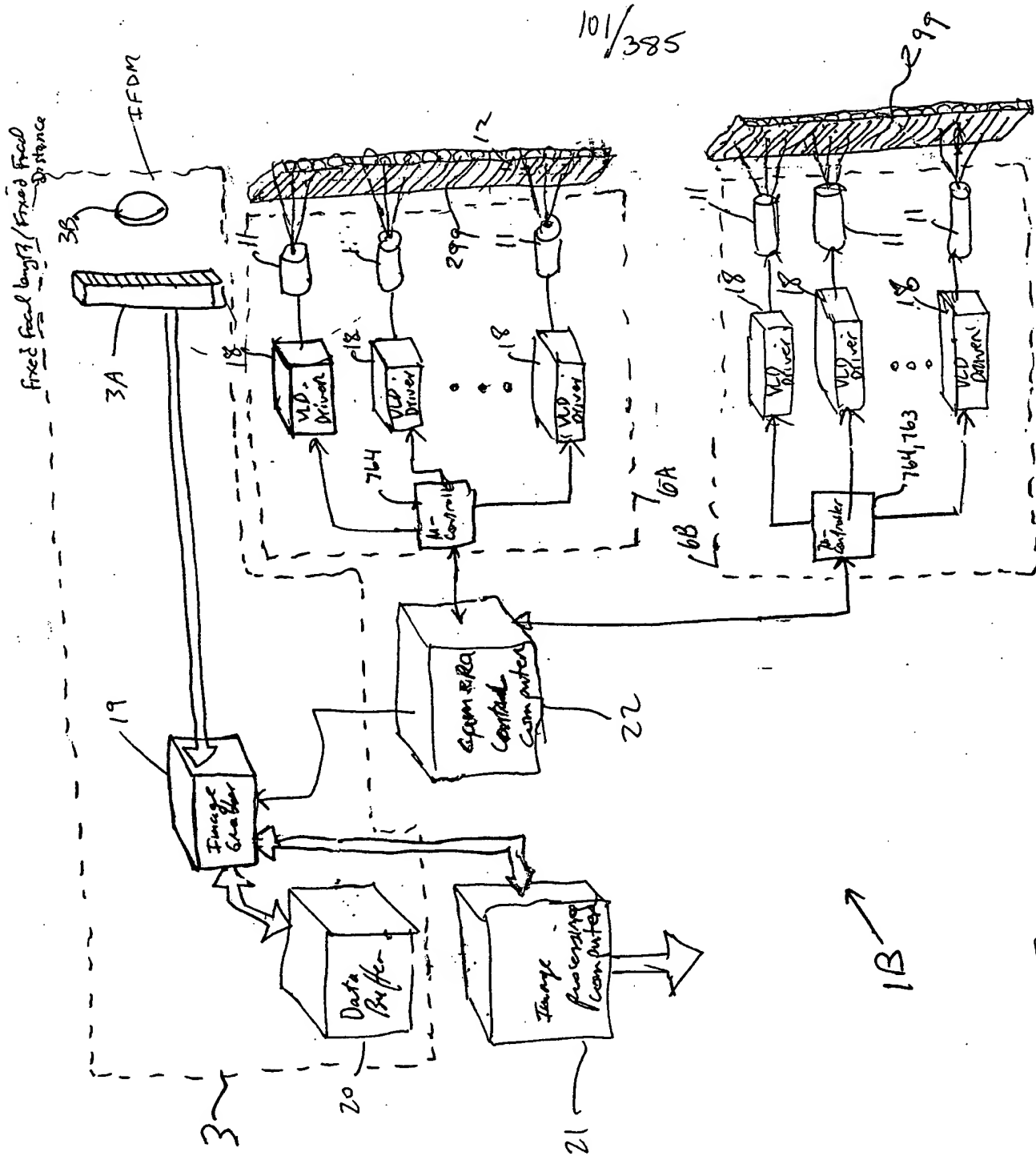


FIG. 10QZ

[illegible]

TOTET 58506660

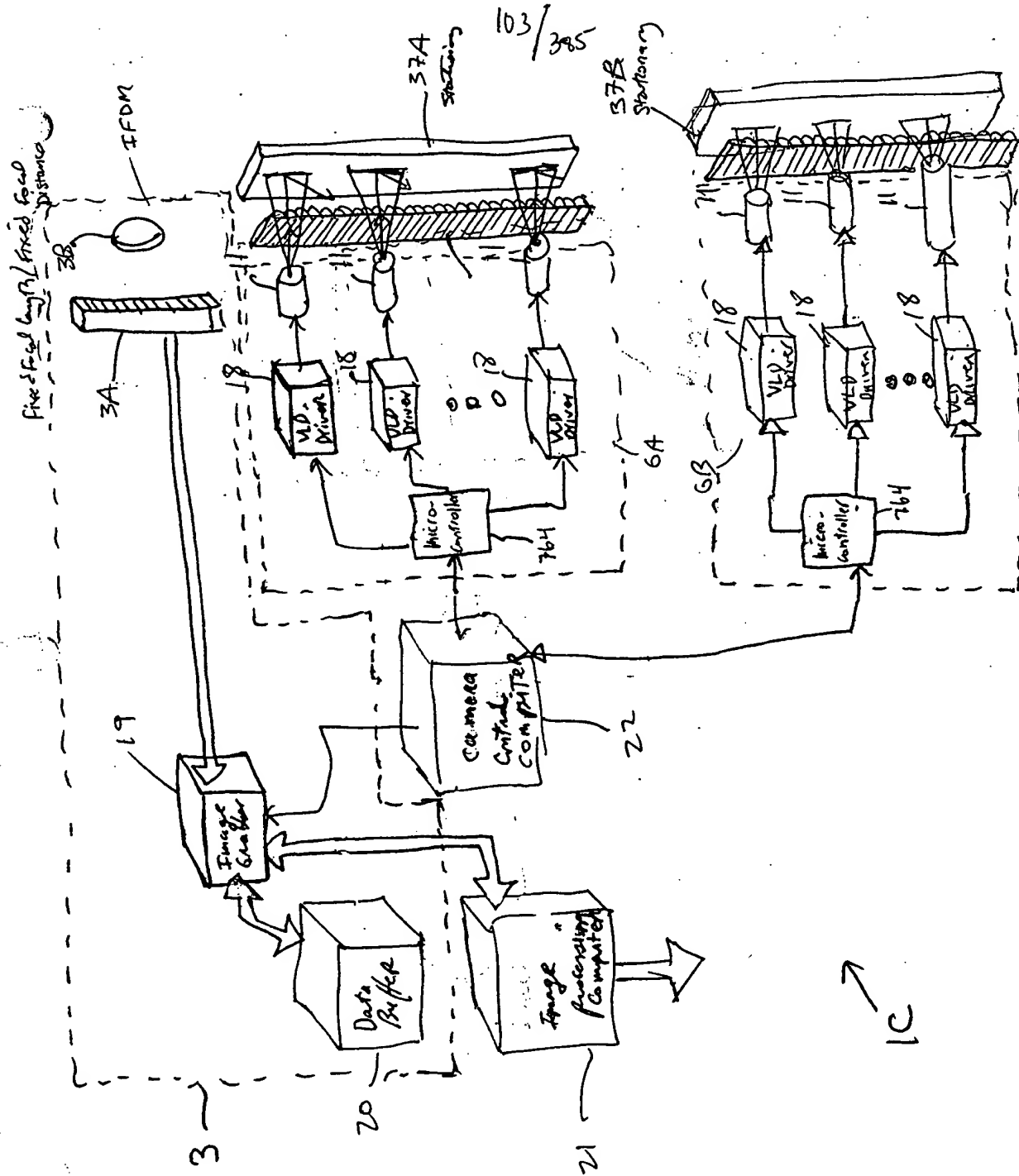


FIG. 1R2

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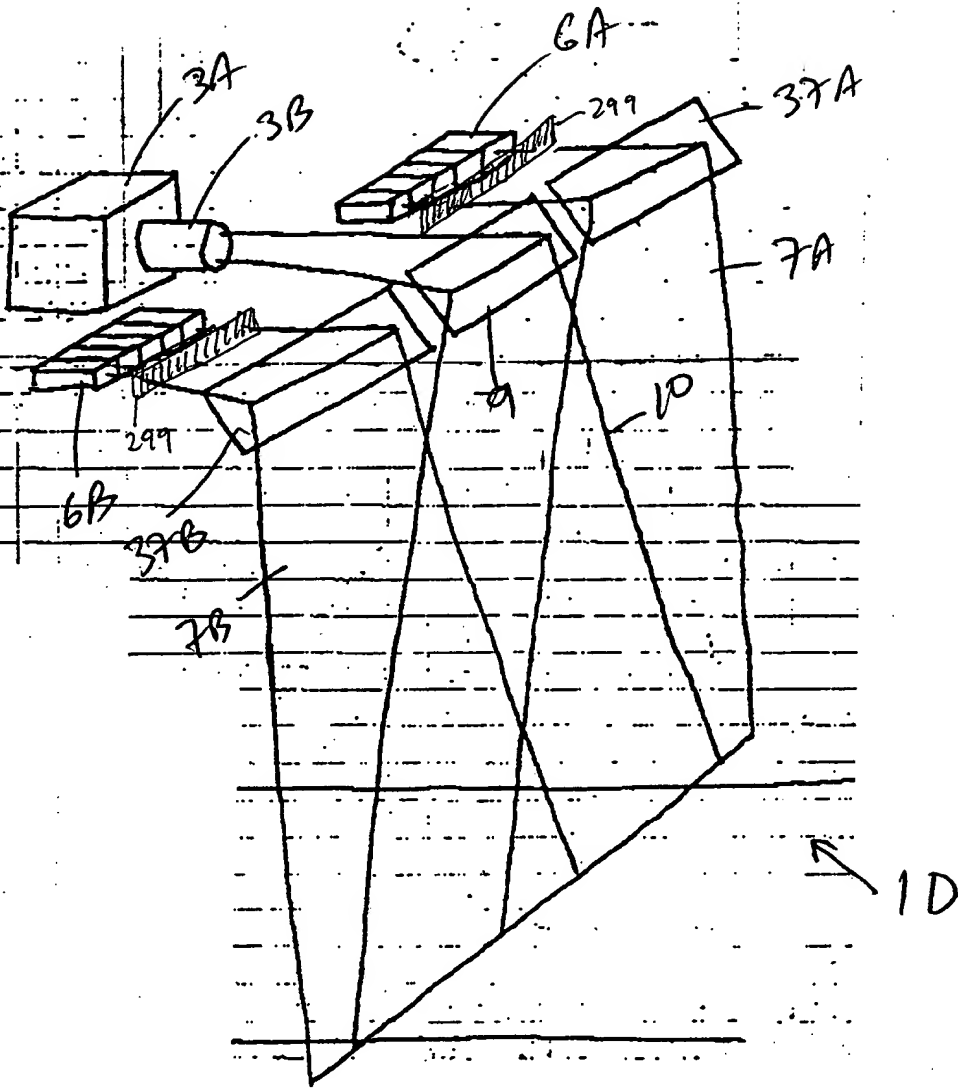
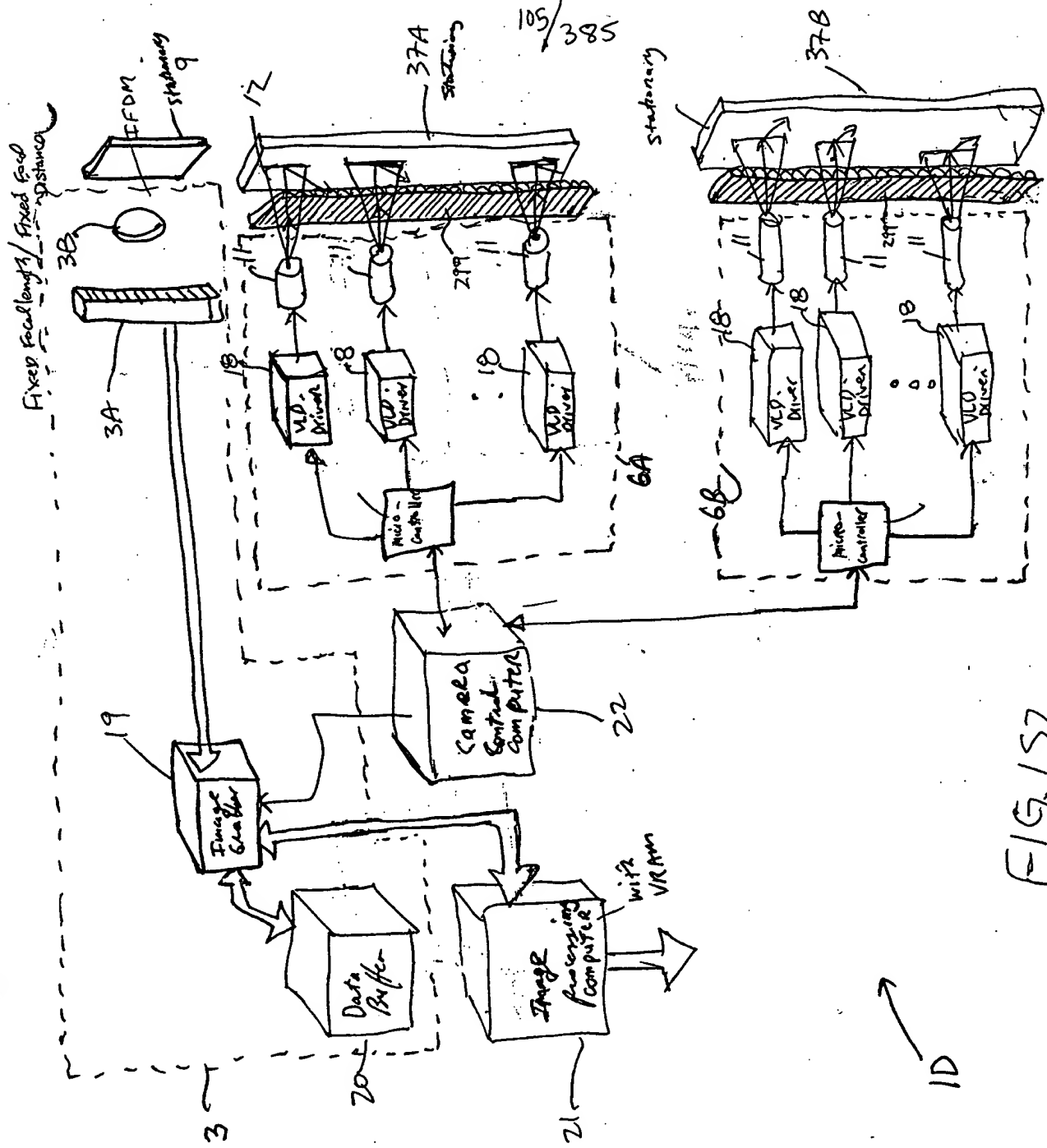


FIG. 1S1

FIG. 1S2



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09990585 112101
TOTET 58206660

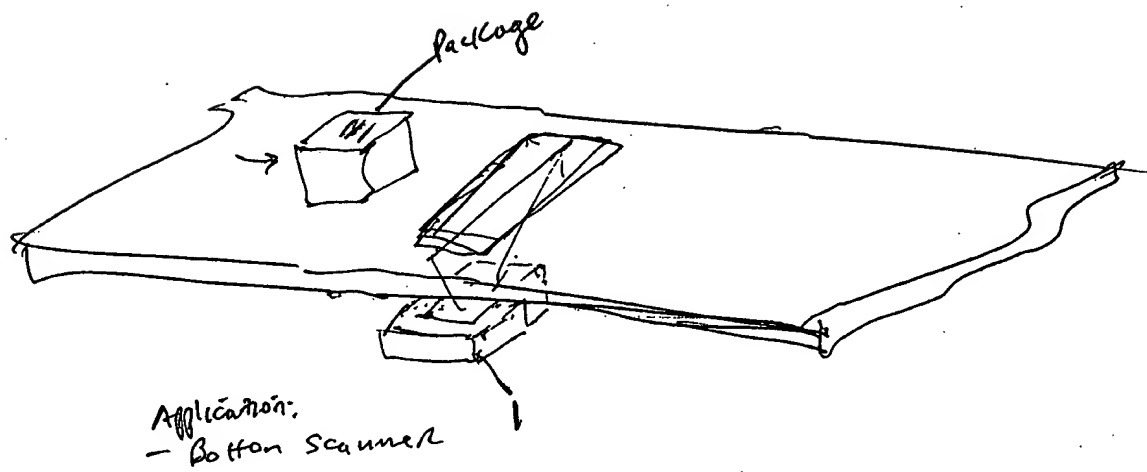
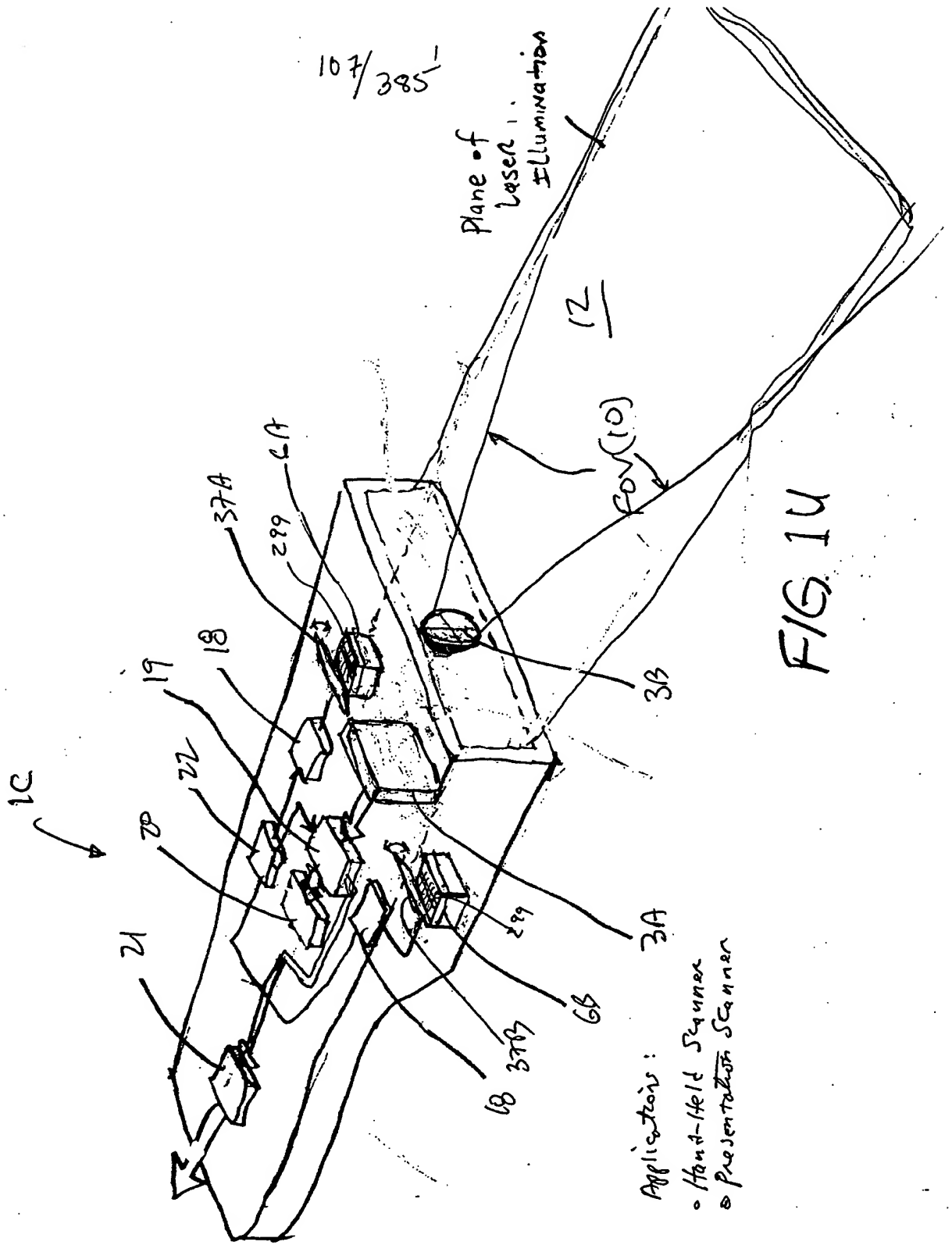


FIG 1T



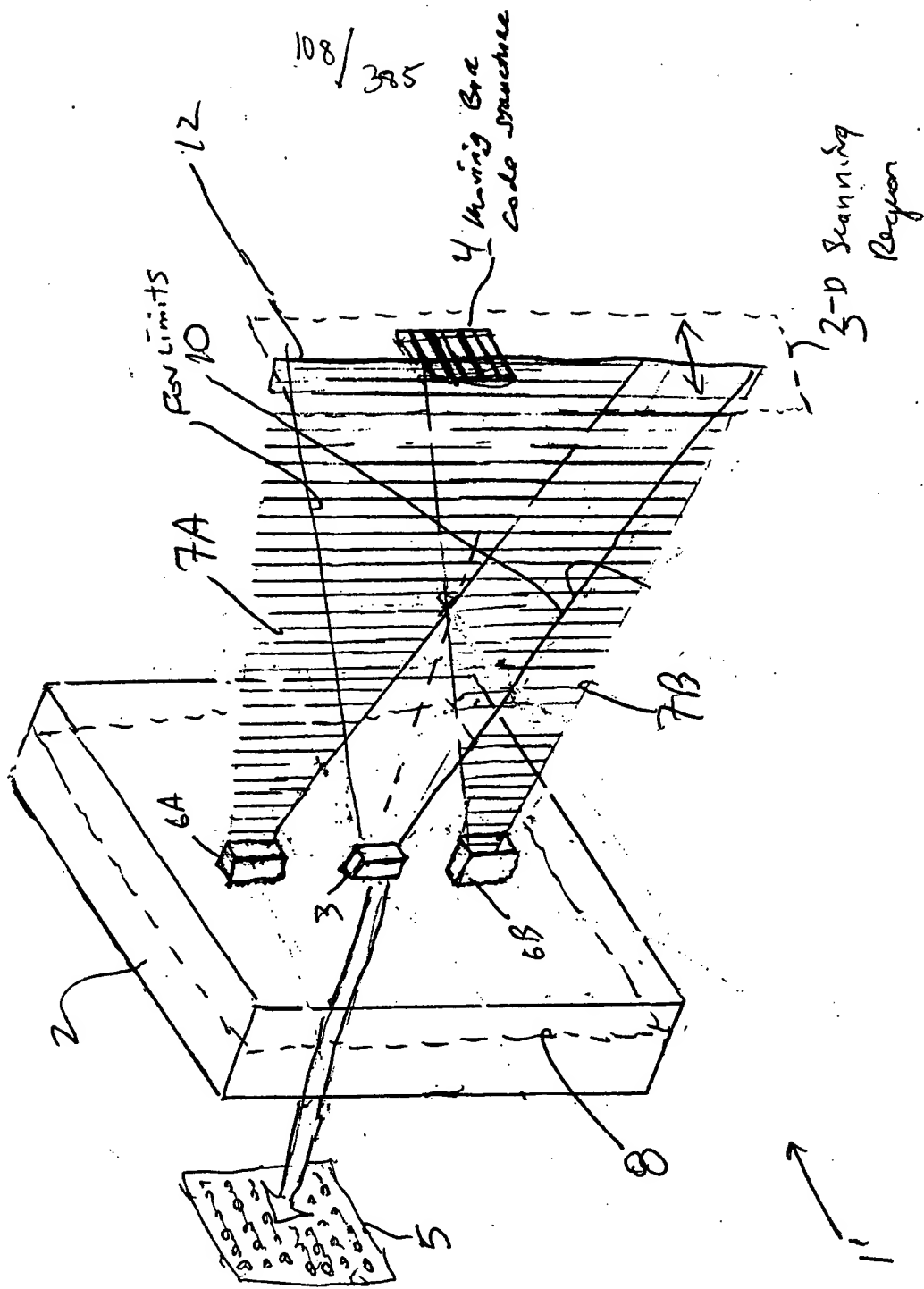


FIG. 1VI

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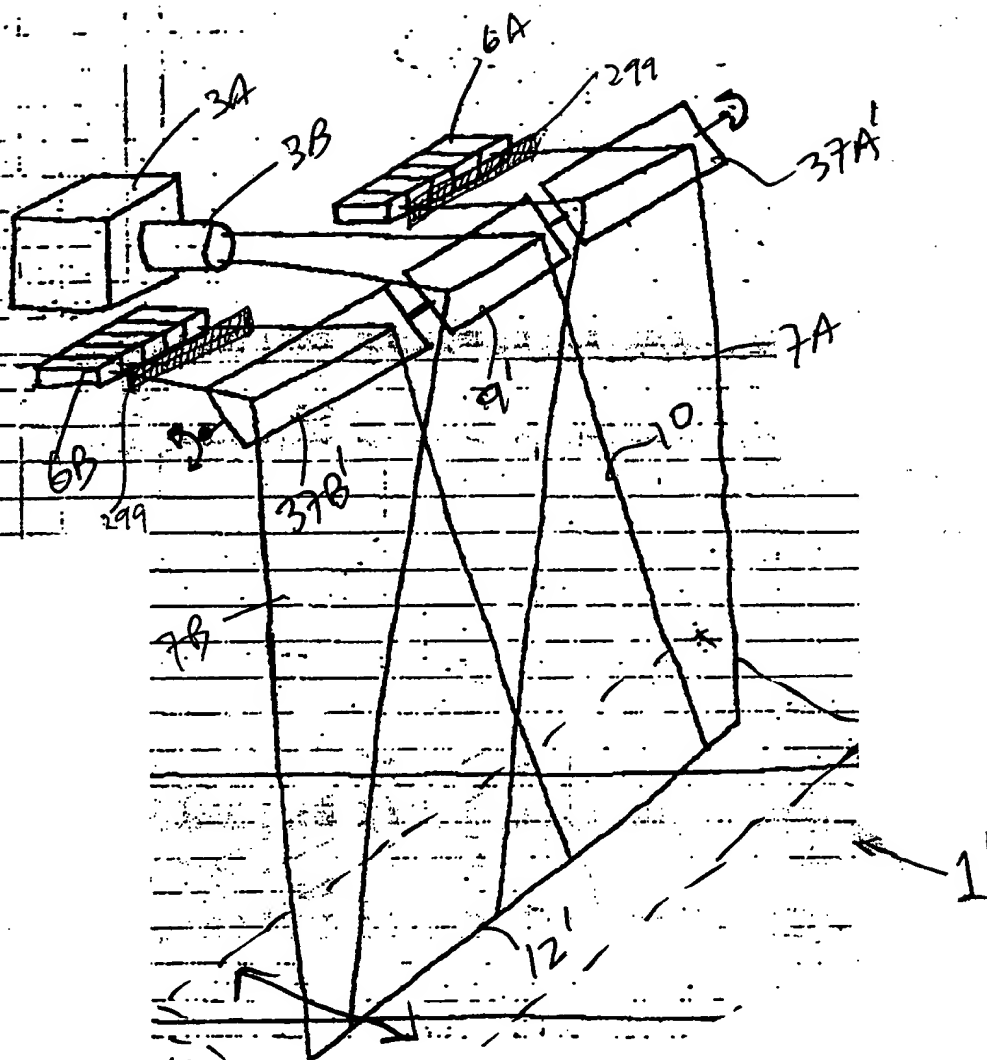


FIG. IV2

2-D
region
of
space

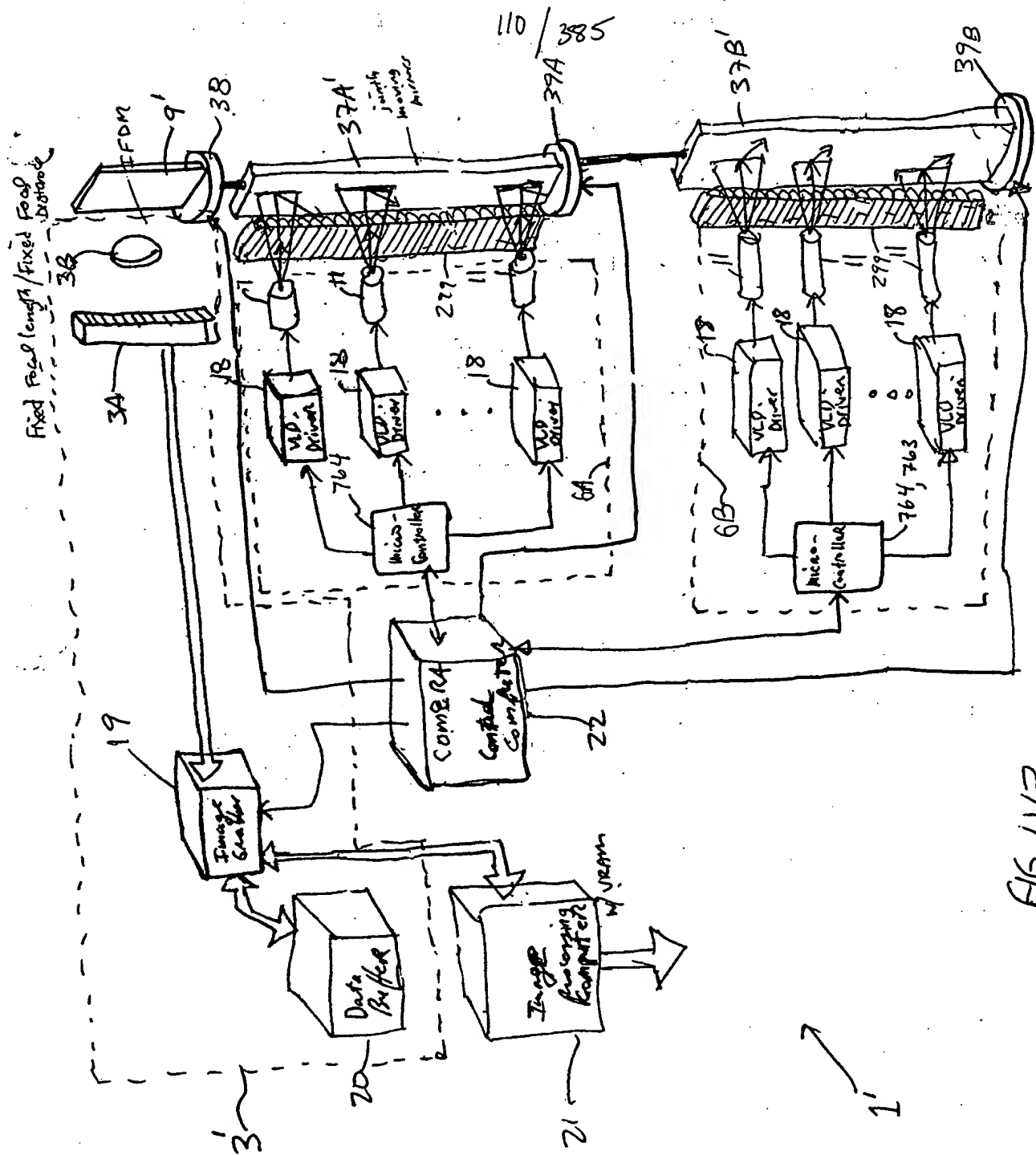
[illegible]

Fig. 1V3

C)

TOTAL: 58506660

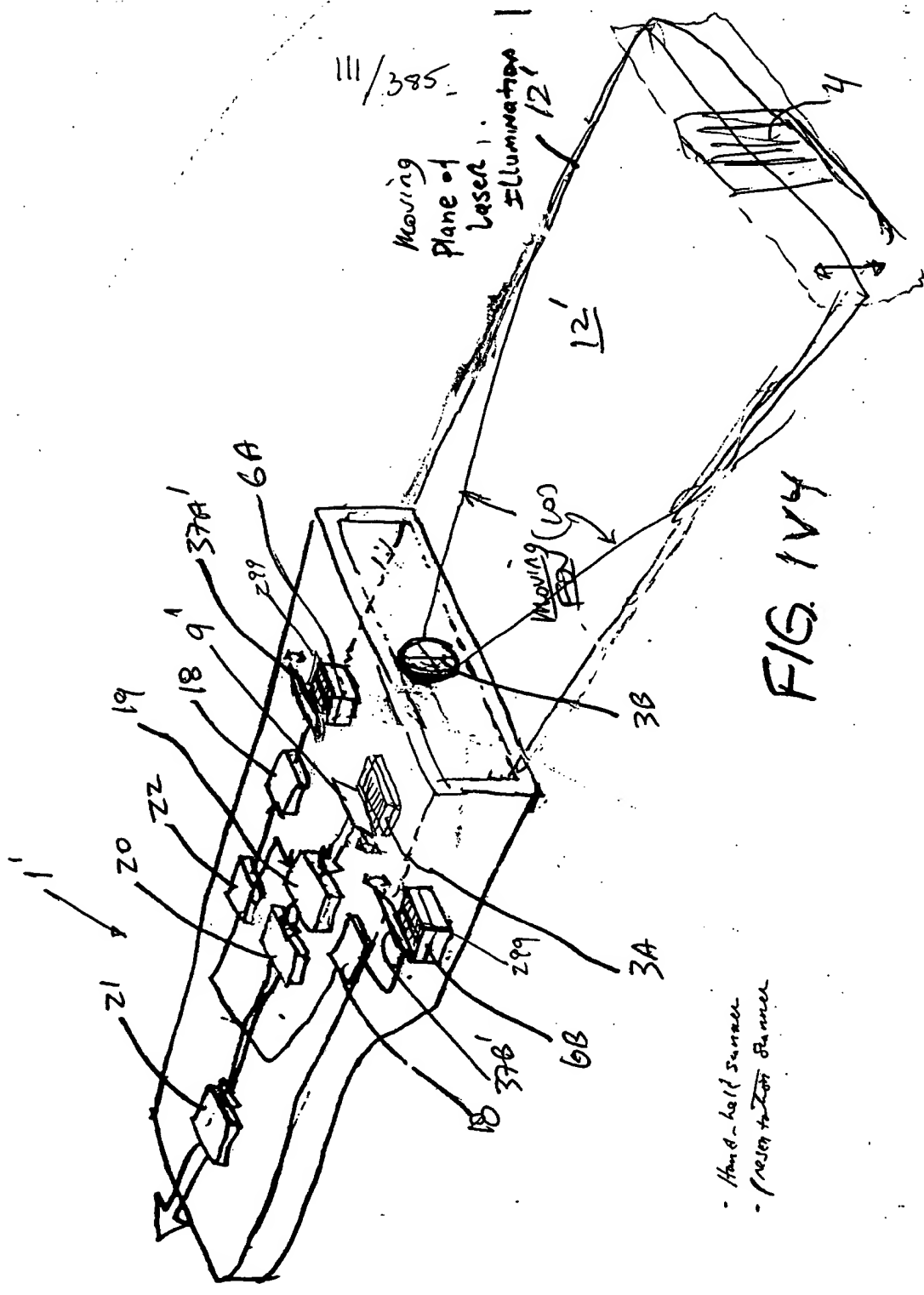


FIG. 1V4

- Hand-held scanner
- Projection Beam

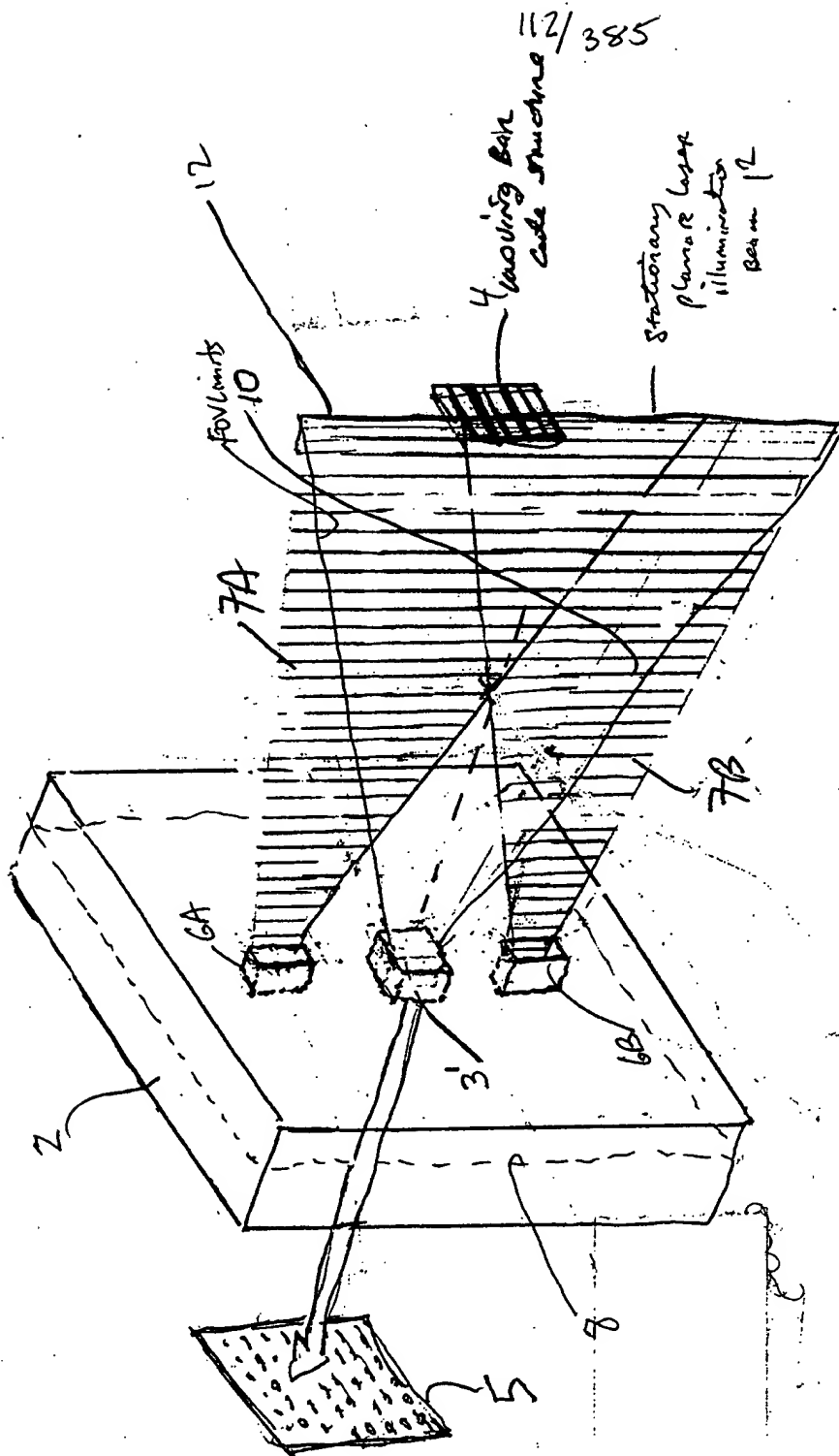


FIG. 2A

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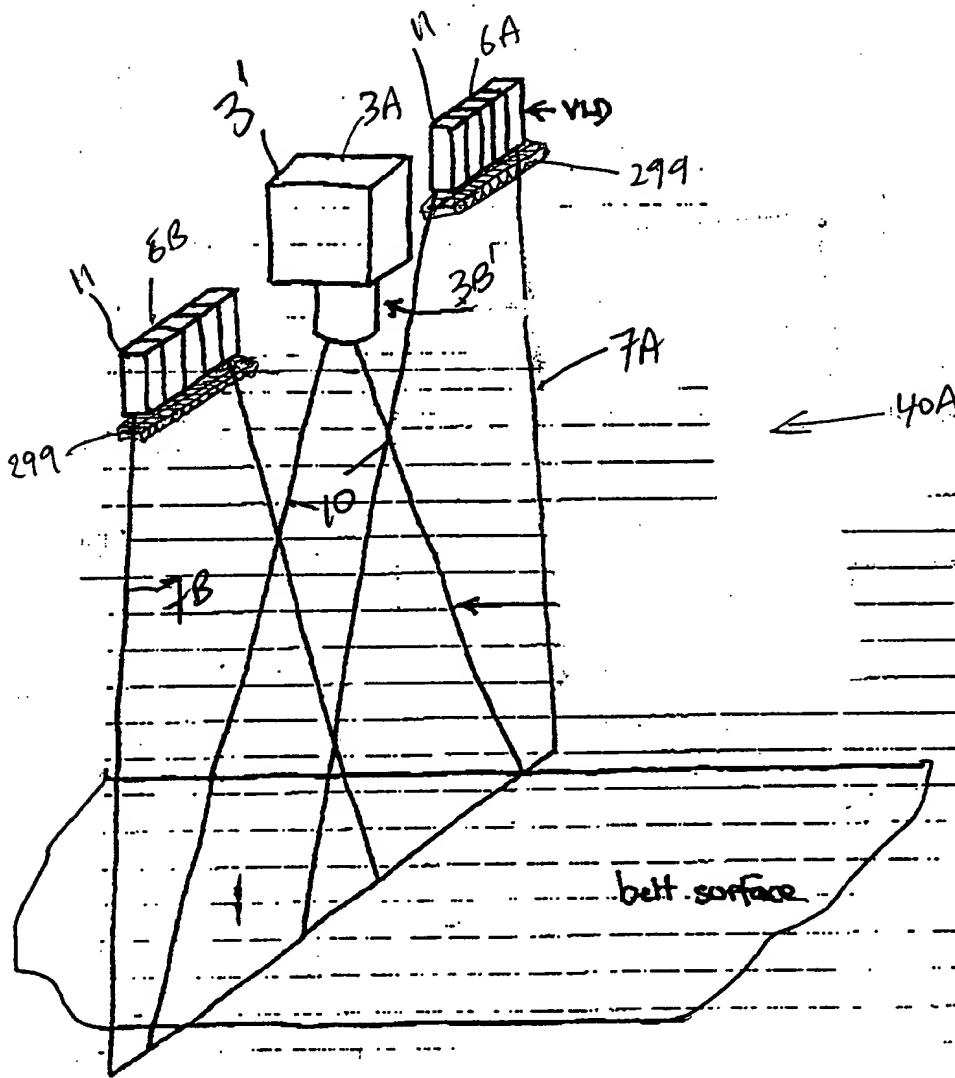
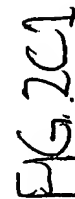


FIG. 2 B1



FIG. 2B2

$$115 / 385$$


40A

TTTTTSSSSSSSSSS

116/385

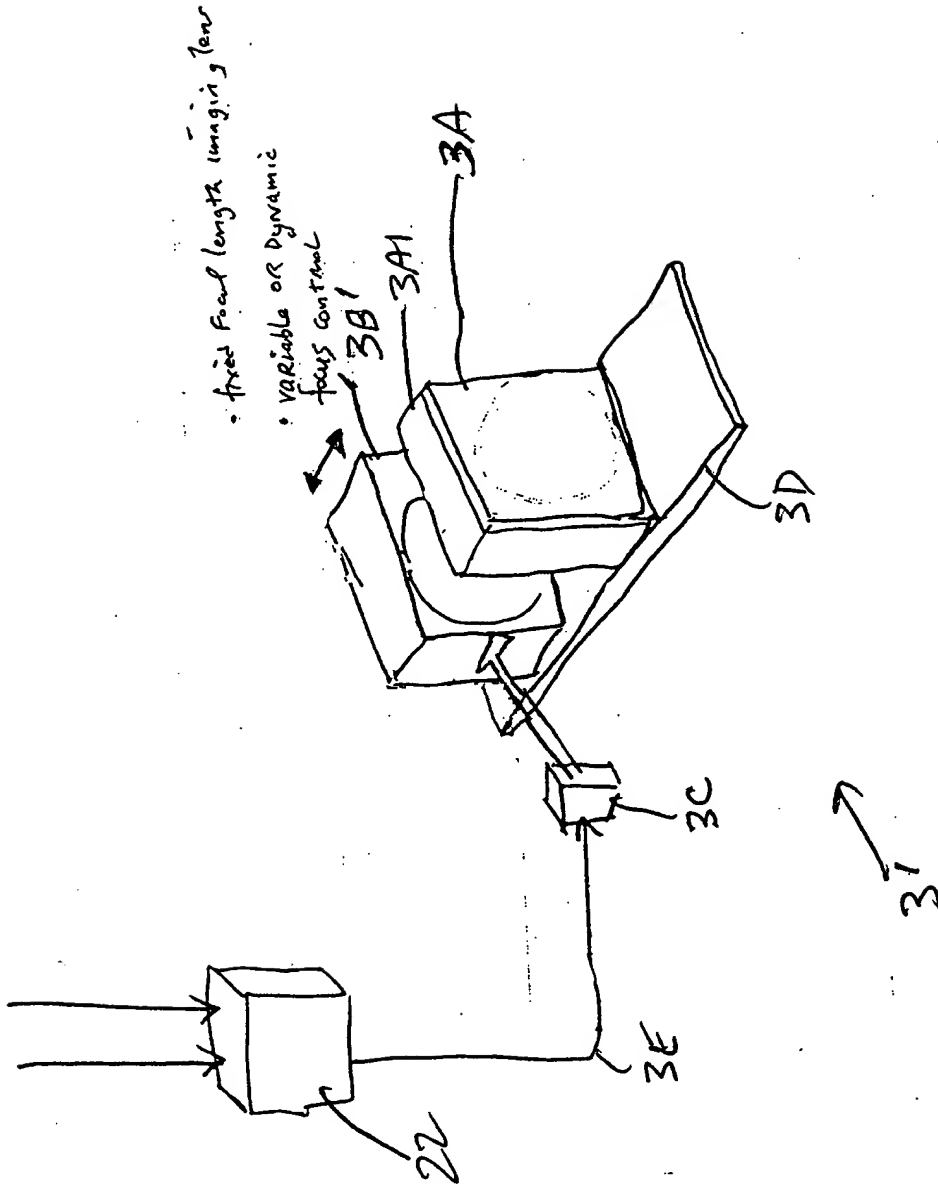


FIG. 2C2

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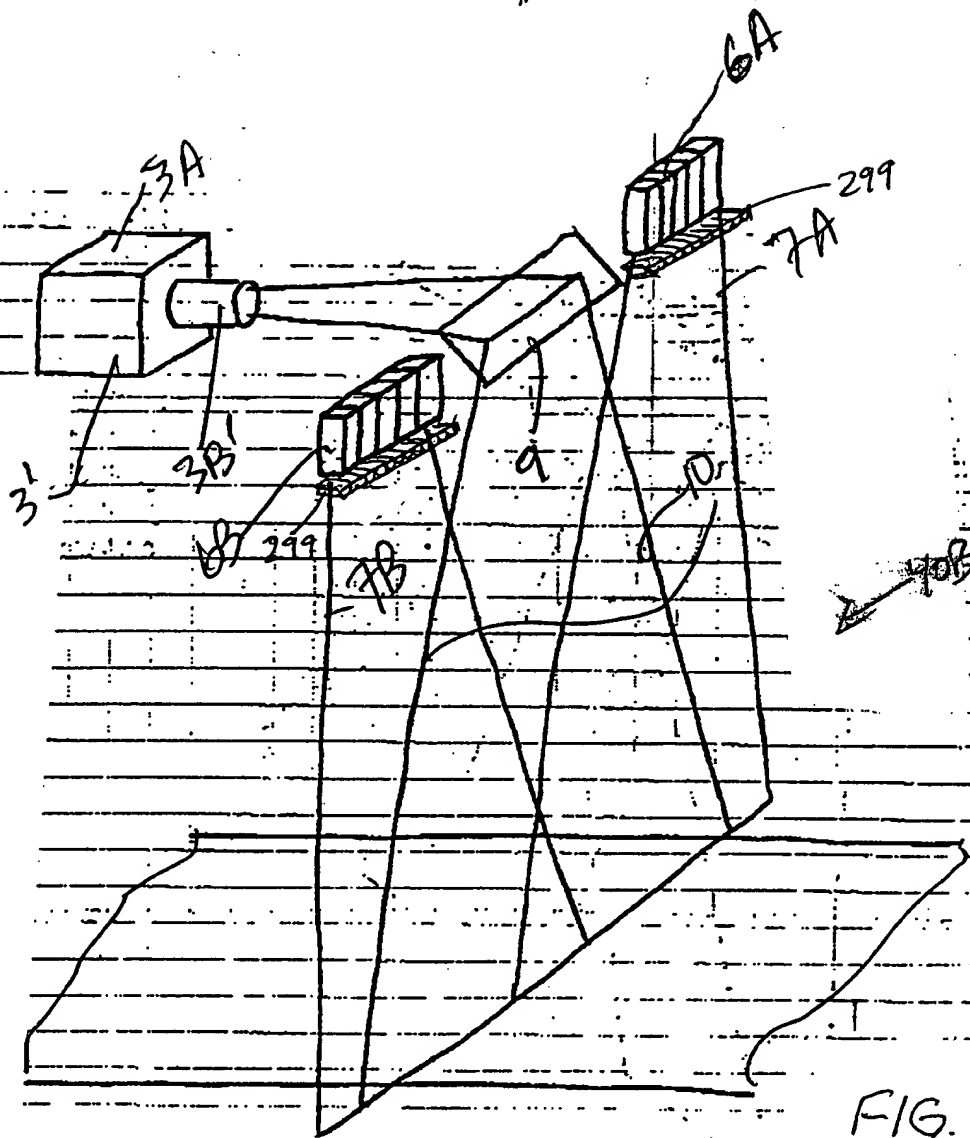
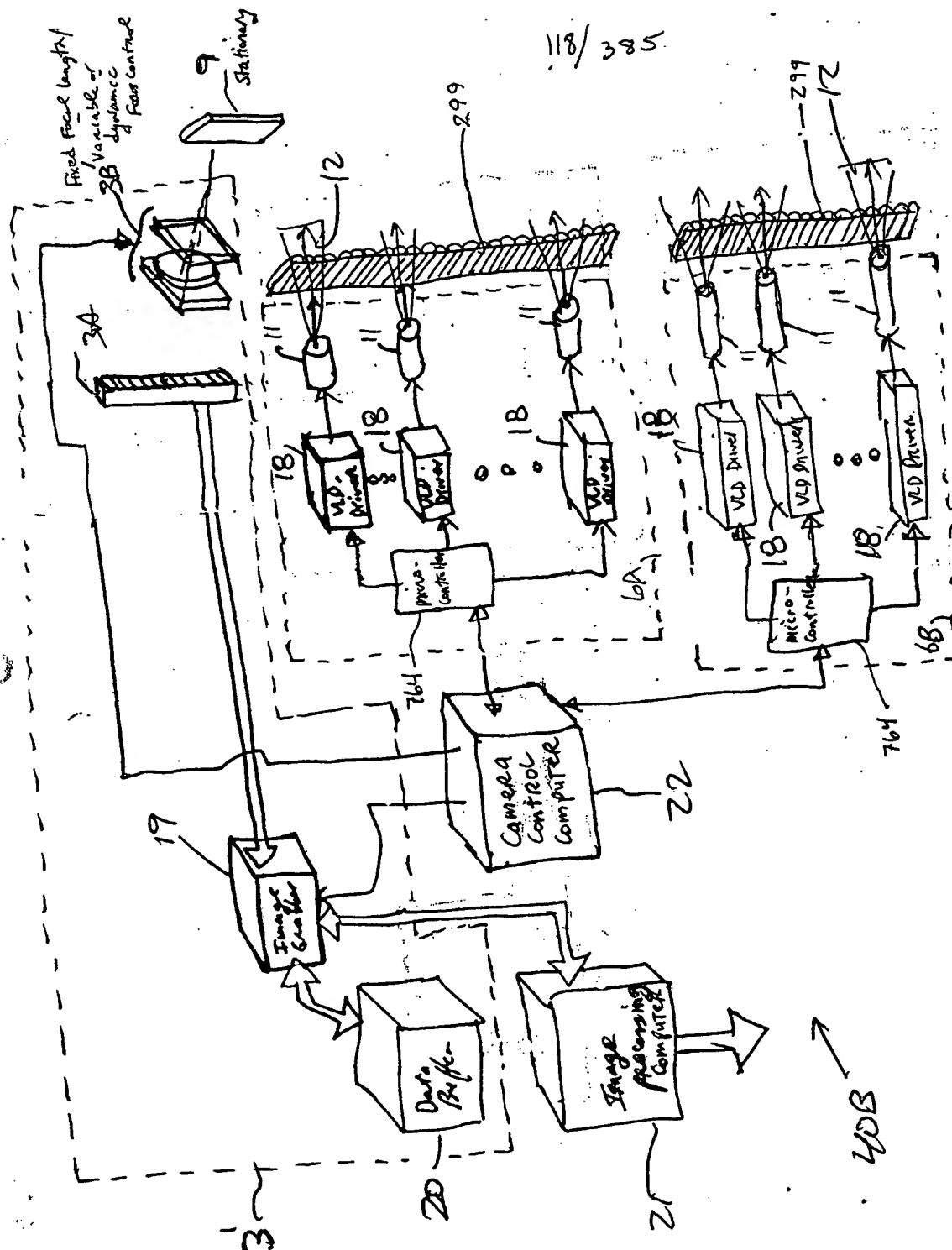


FIG. 2D1

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AG. 2D2

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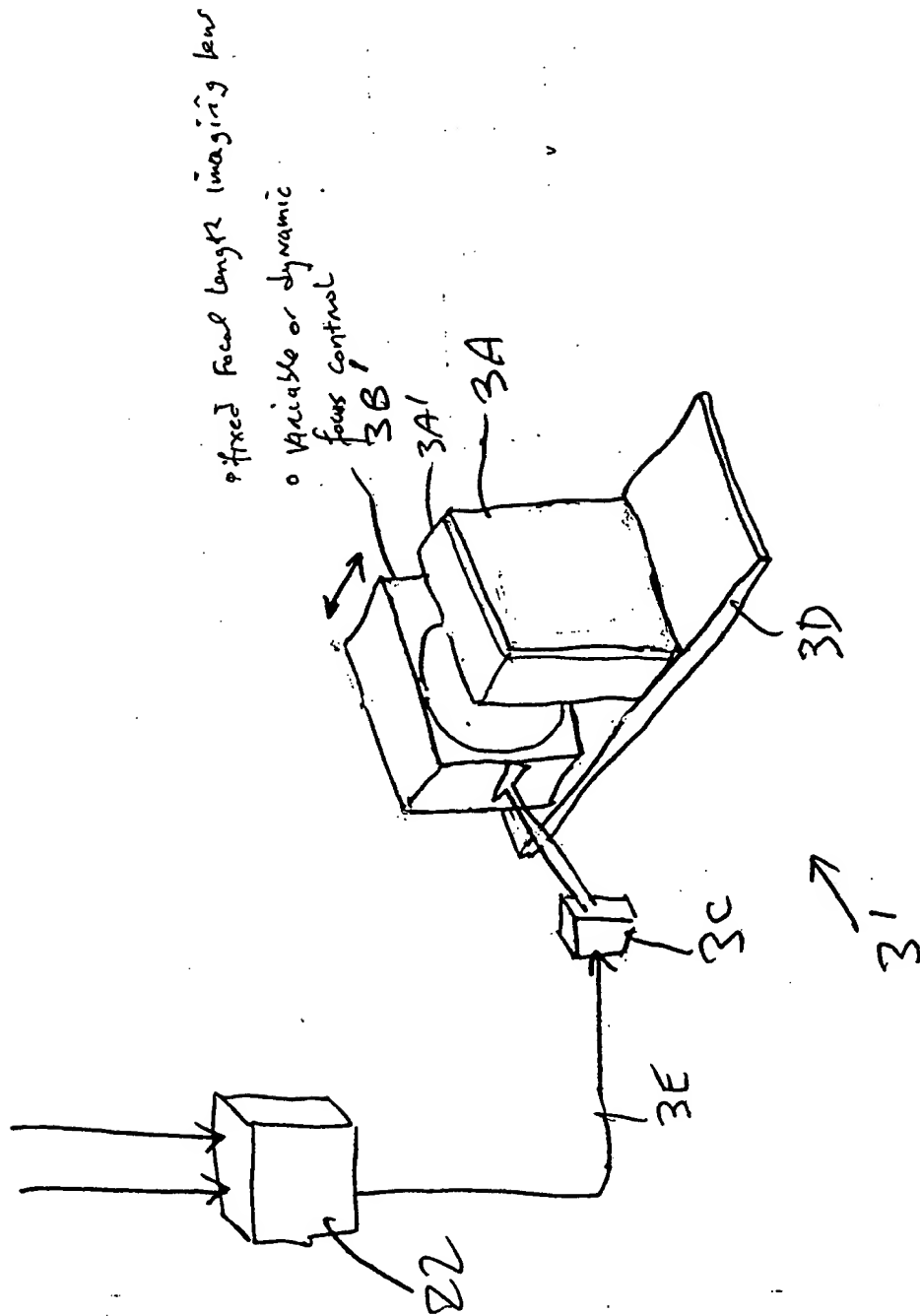


FIG. 2D3

00000555 112101

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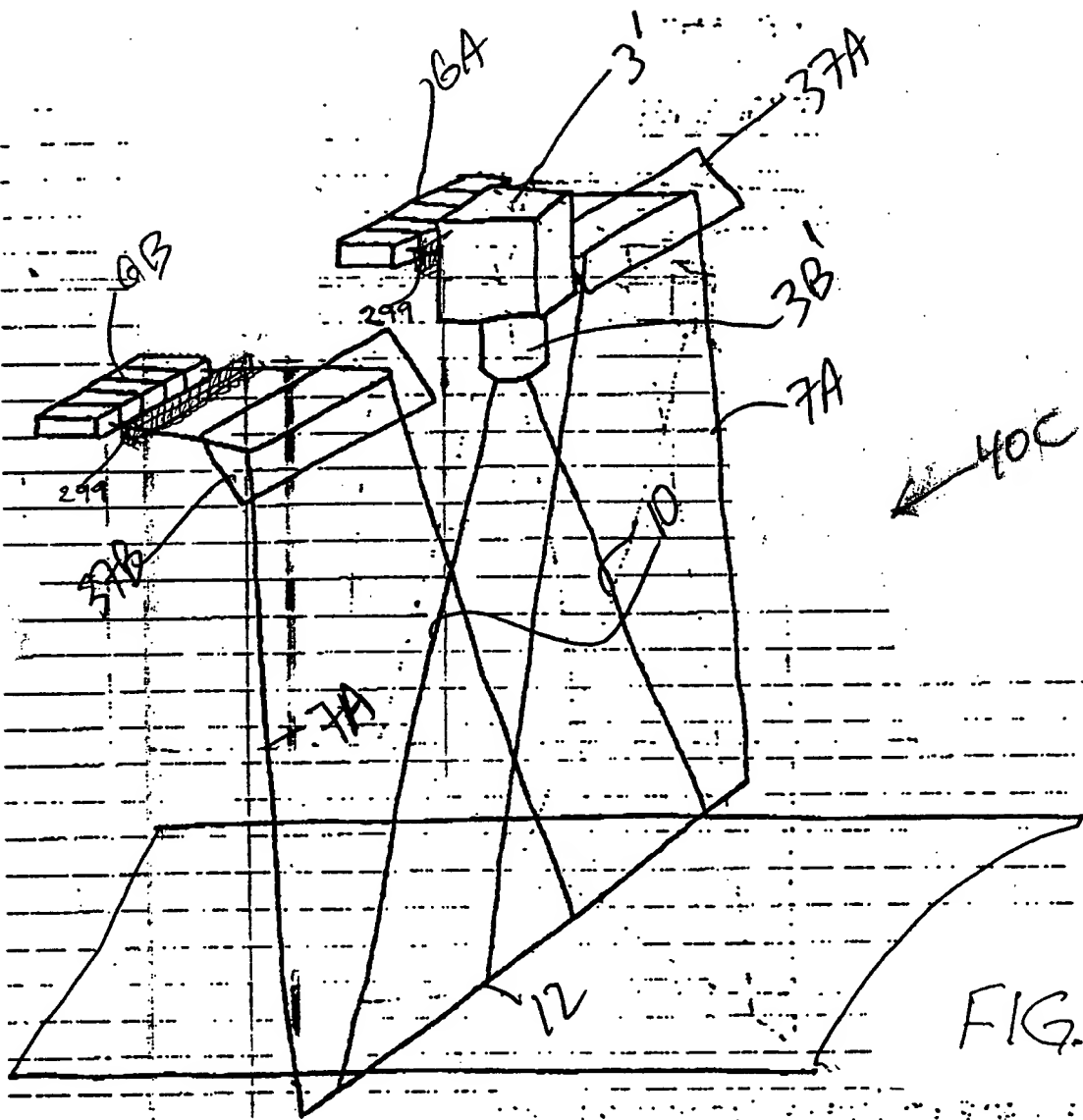


FIG. 2E1

[illegible]

FIG. 2E2

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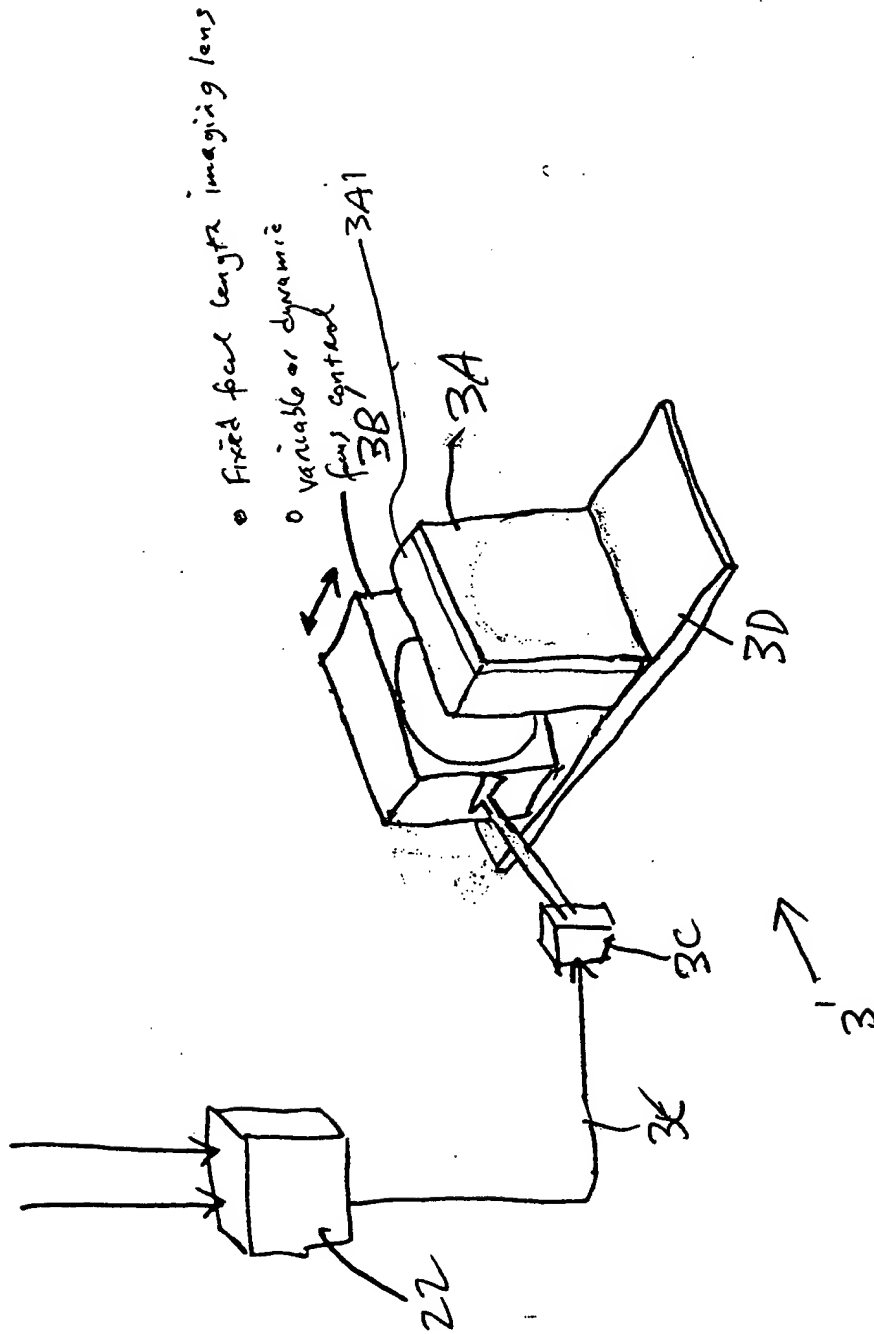


FIG. 2E3

[illegible][illegible]

FIG. 2F2

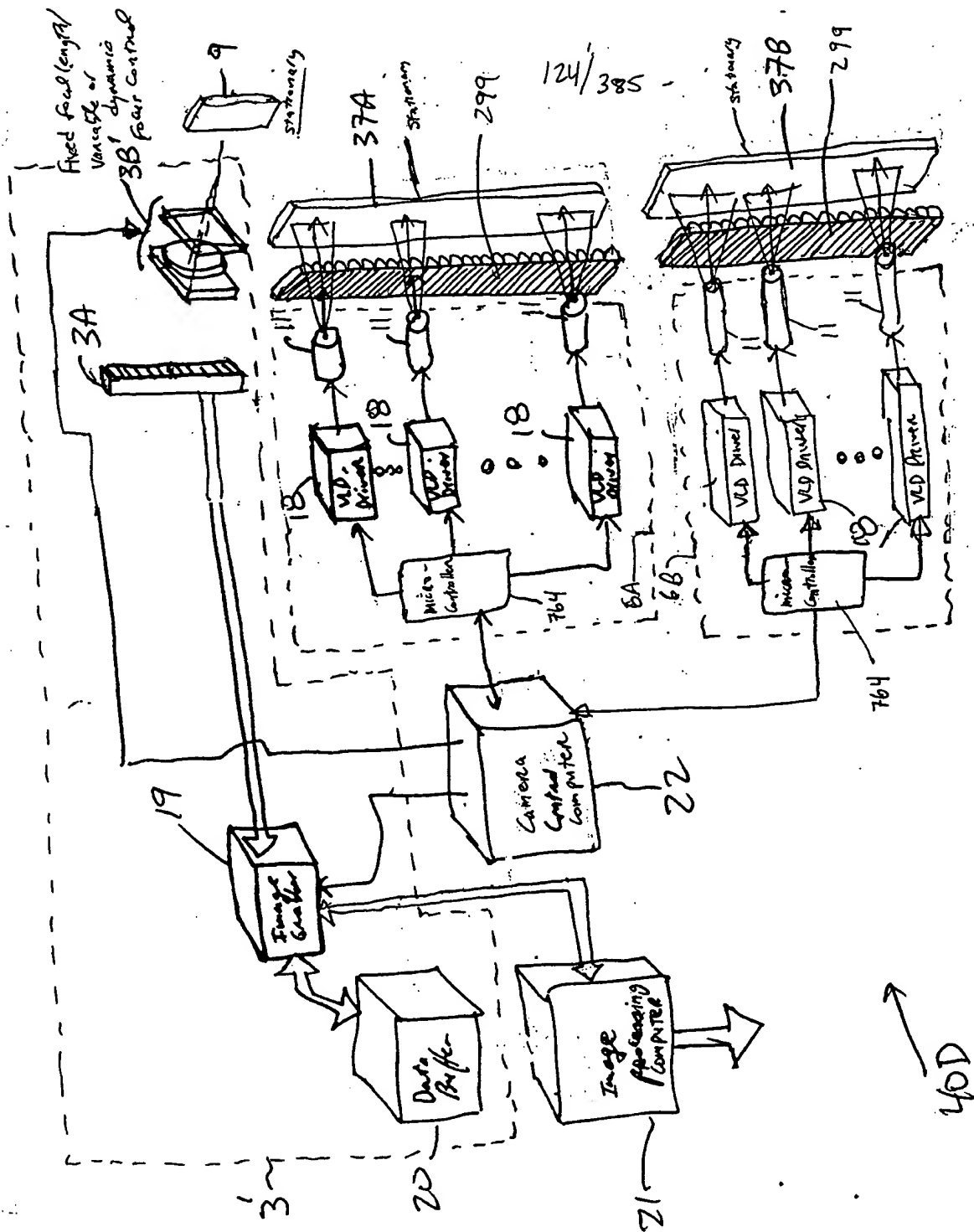


FIG. 2F2

125/385

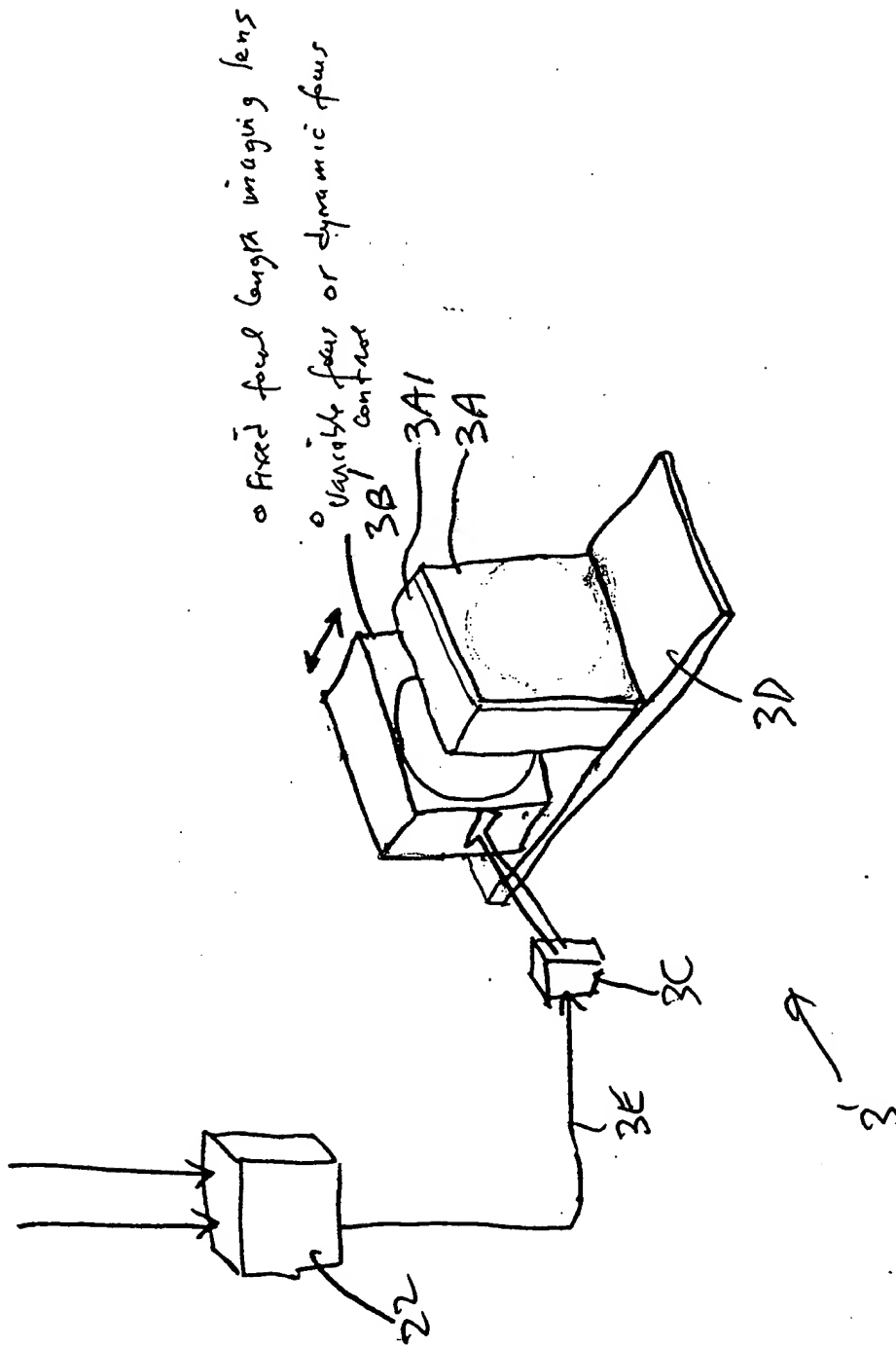
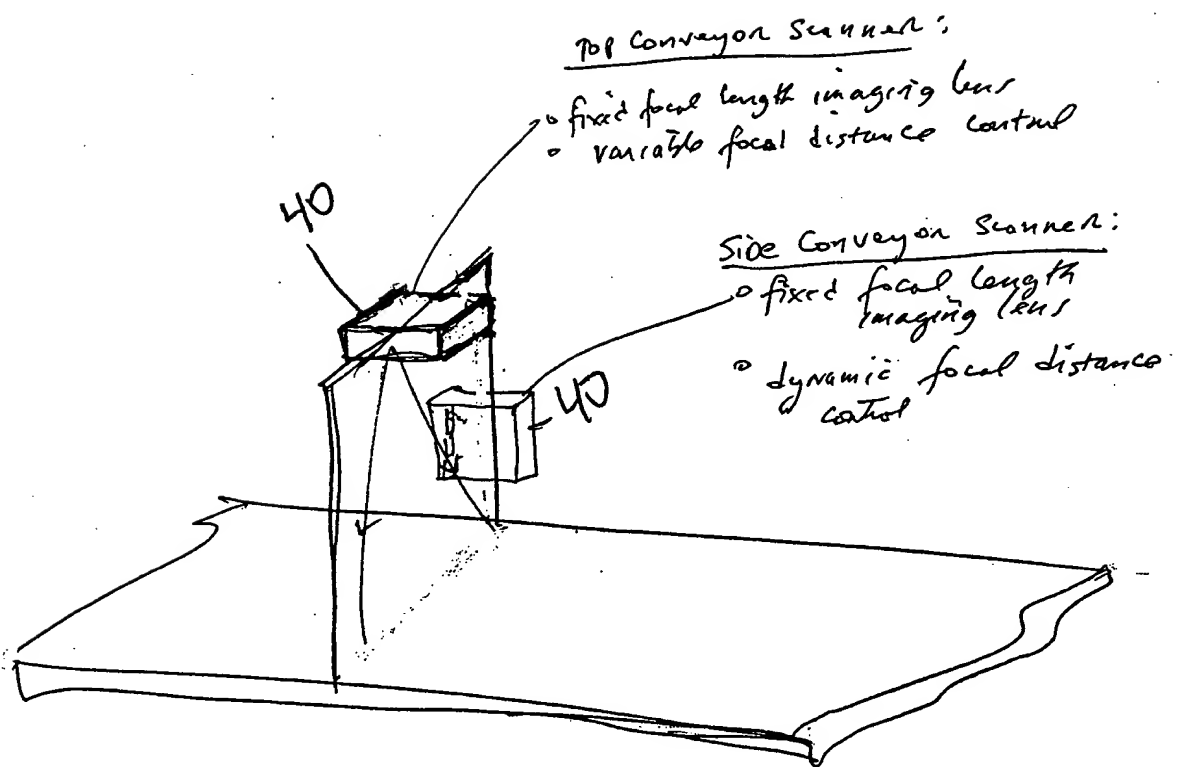


FIG. 2F3

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00000555 112101



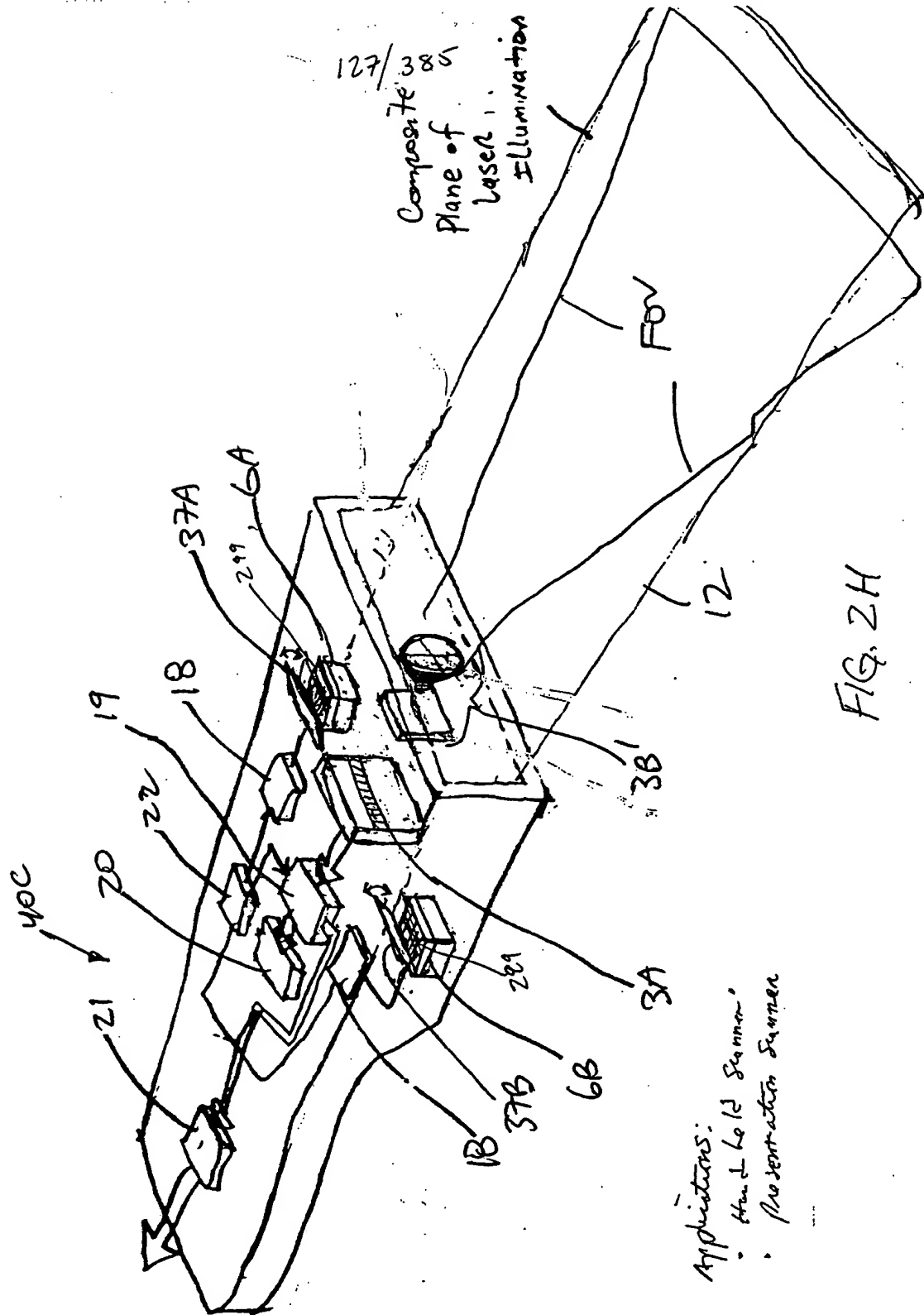
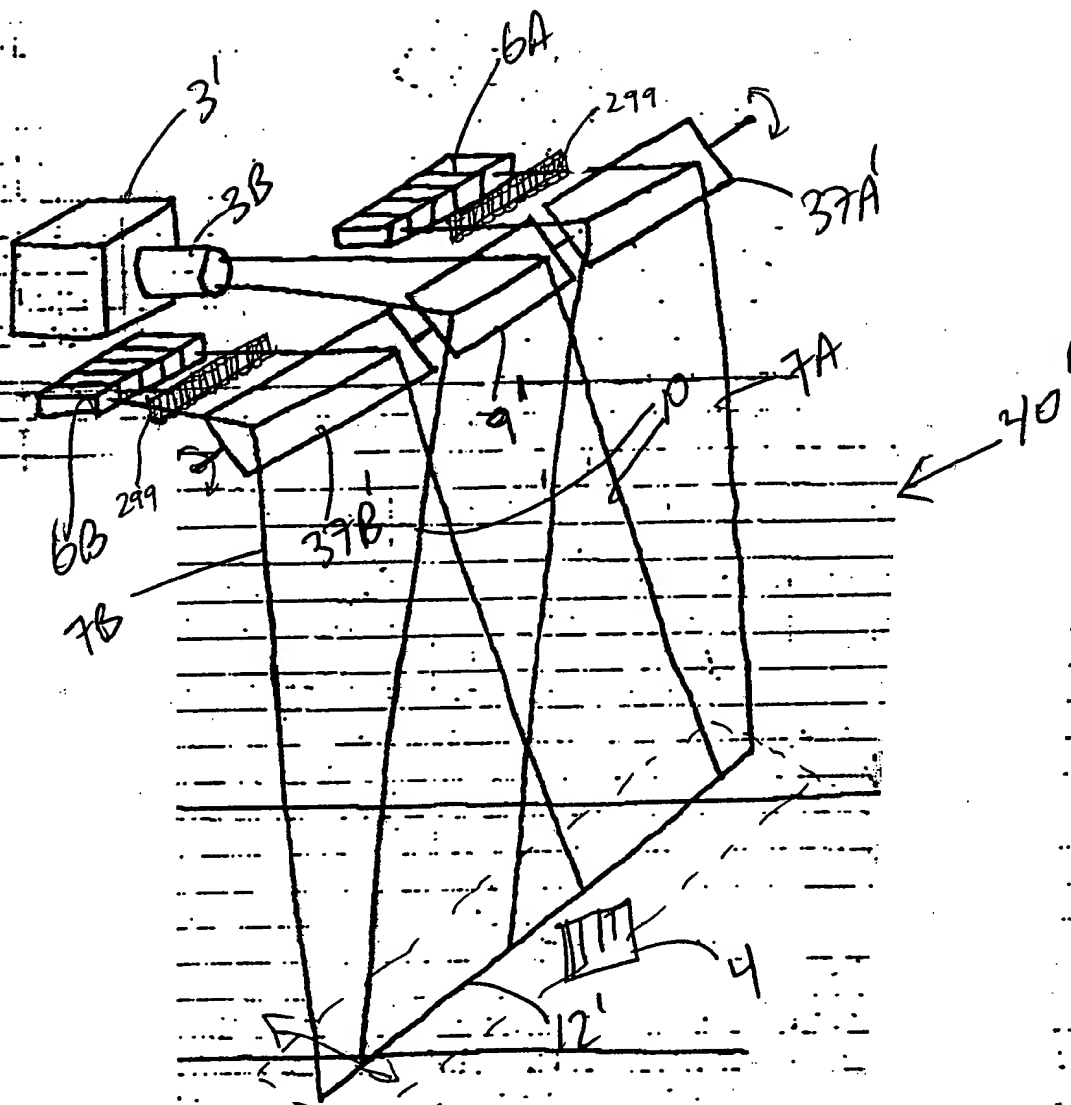


FIG. 2H

Applications:
• Hand Held Scanner
• Presentation Scanner

00000585 1101 58506660

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3-D
Scanning
Region

FIG 2I2



FIG. 2I3

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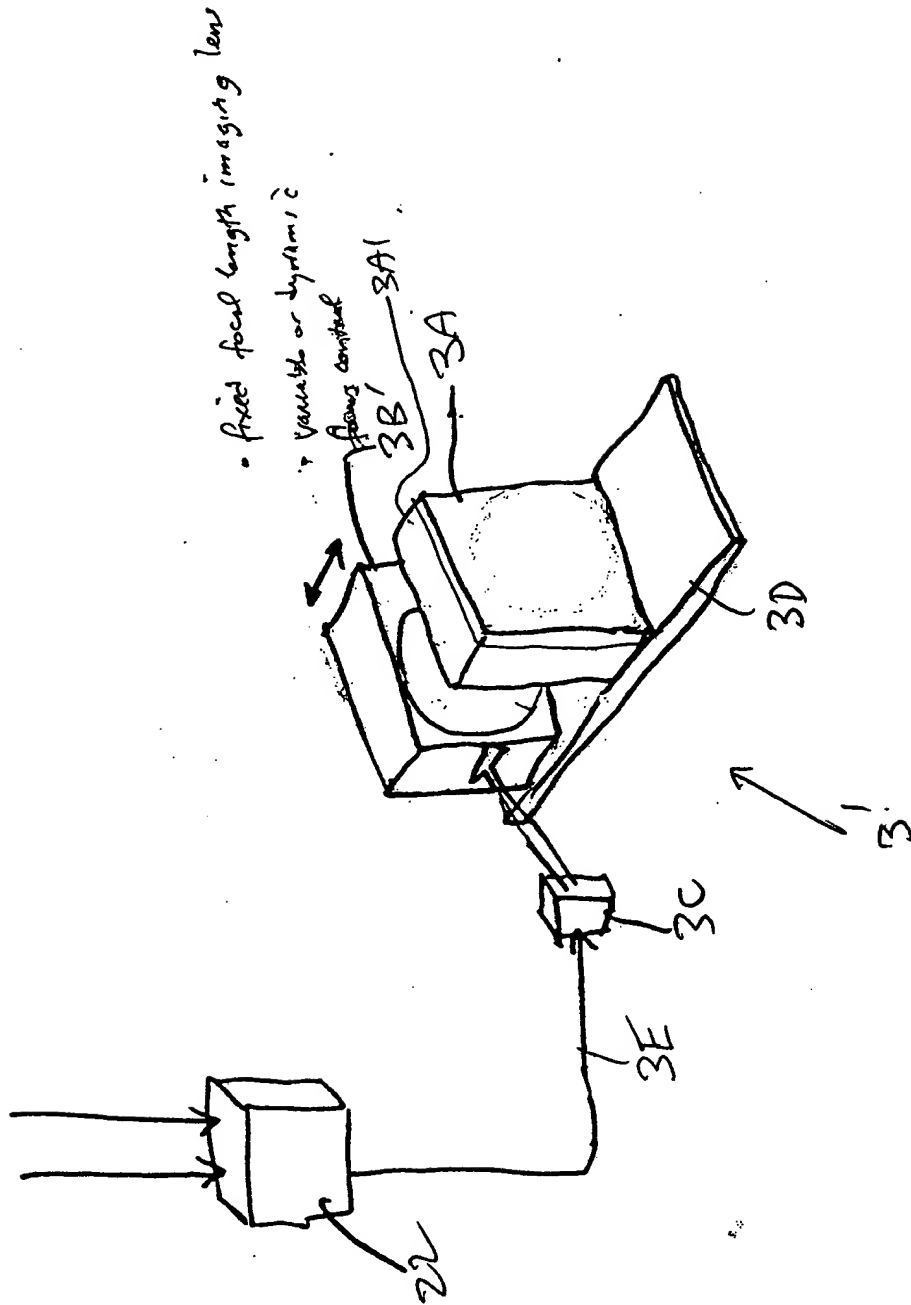
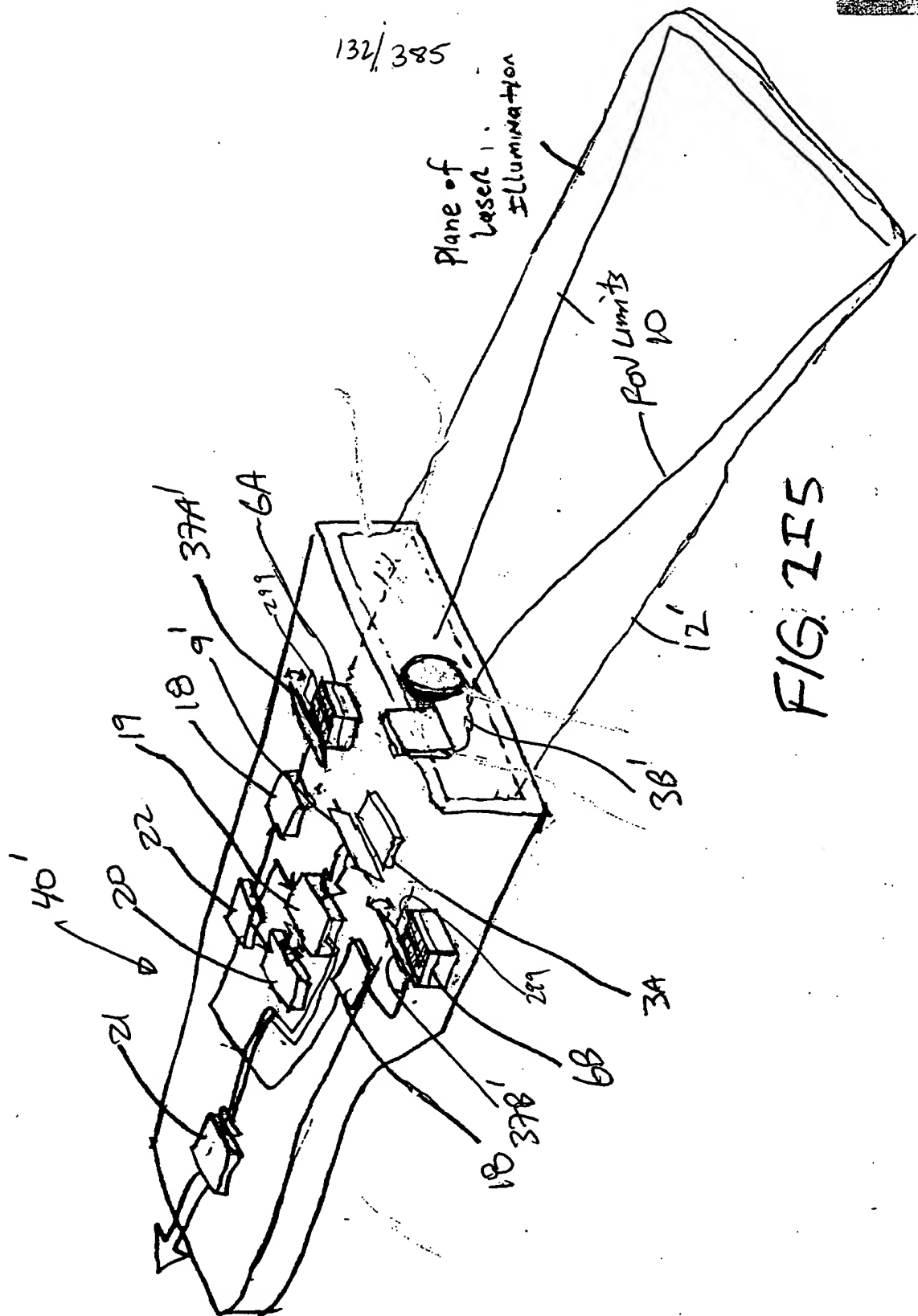


FIG. 2I4



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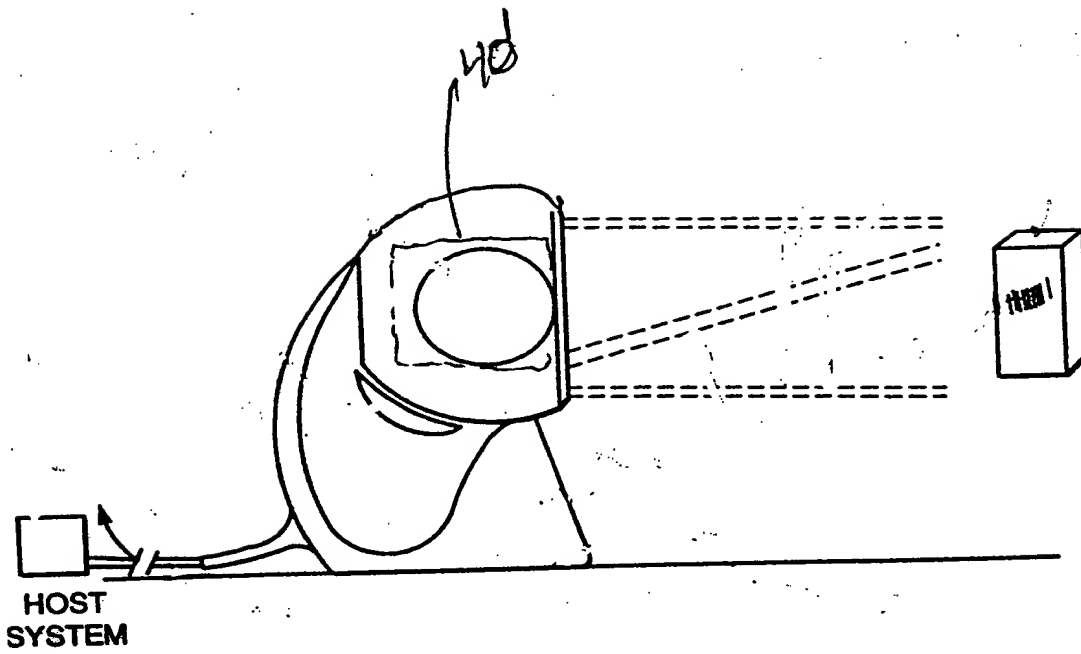


FIG. 2I6

00000555 112101
TOT27 58506600

1000000
 900000
 800000
 700000
 600000
 500000
 400000
 300000
 200000
 100000
 0

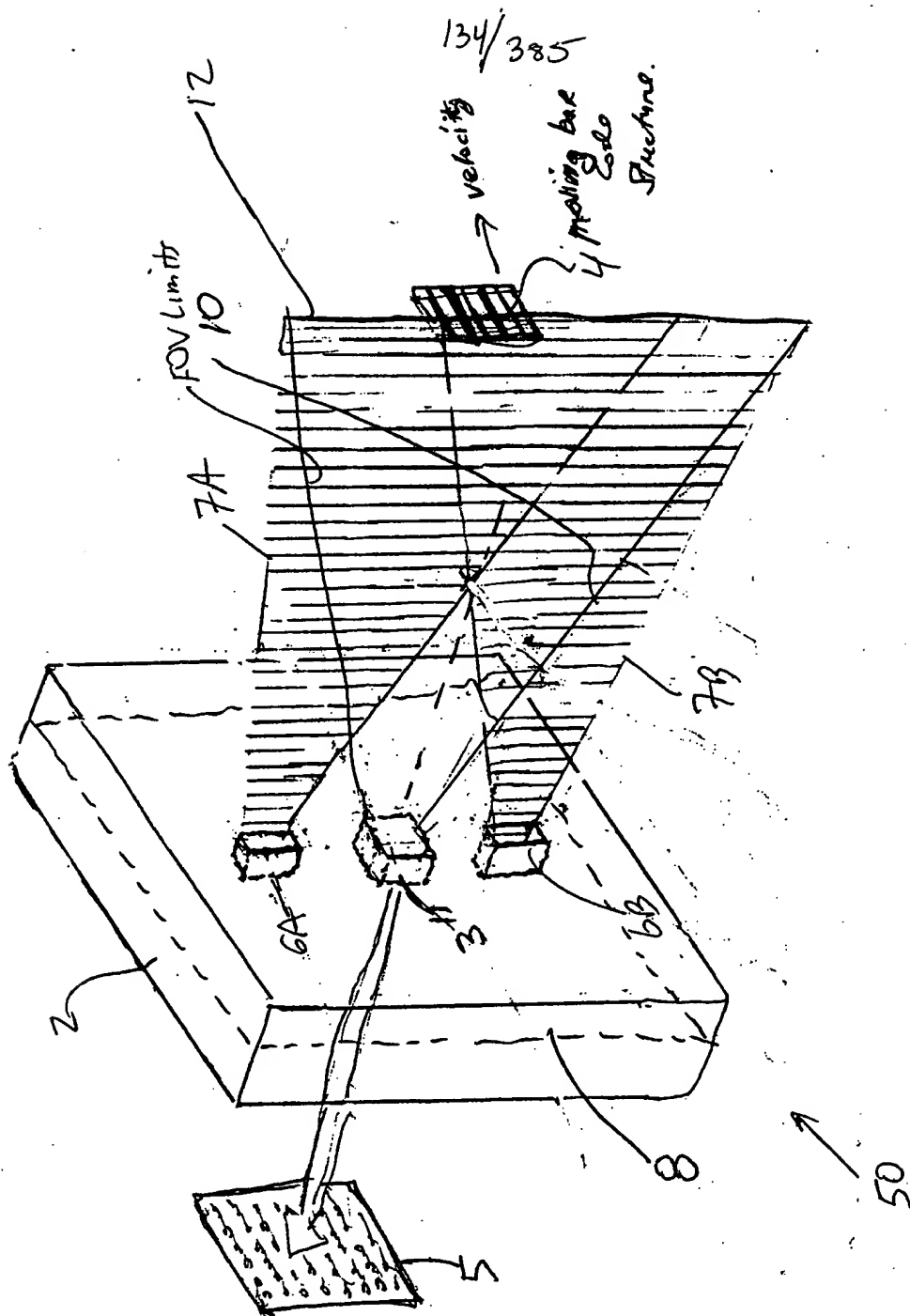


FIG 3A

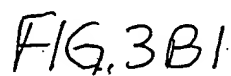
[illegible]

FIG. 3B1.

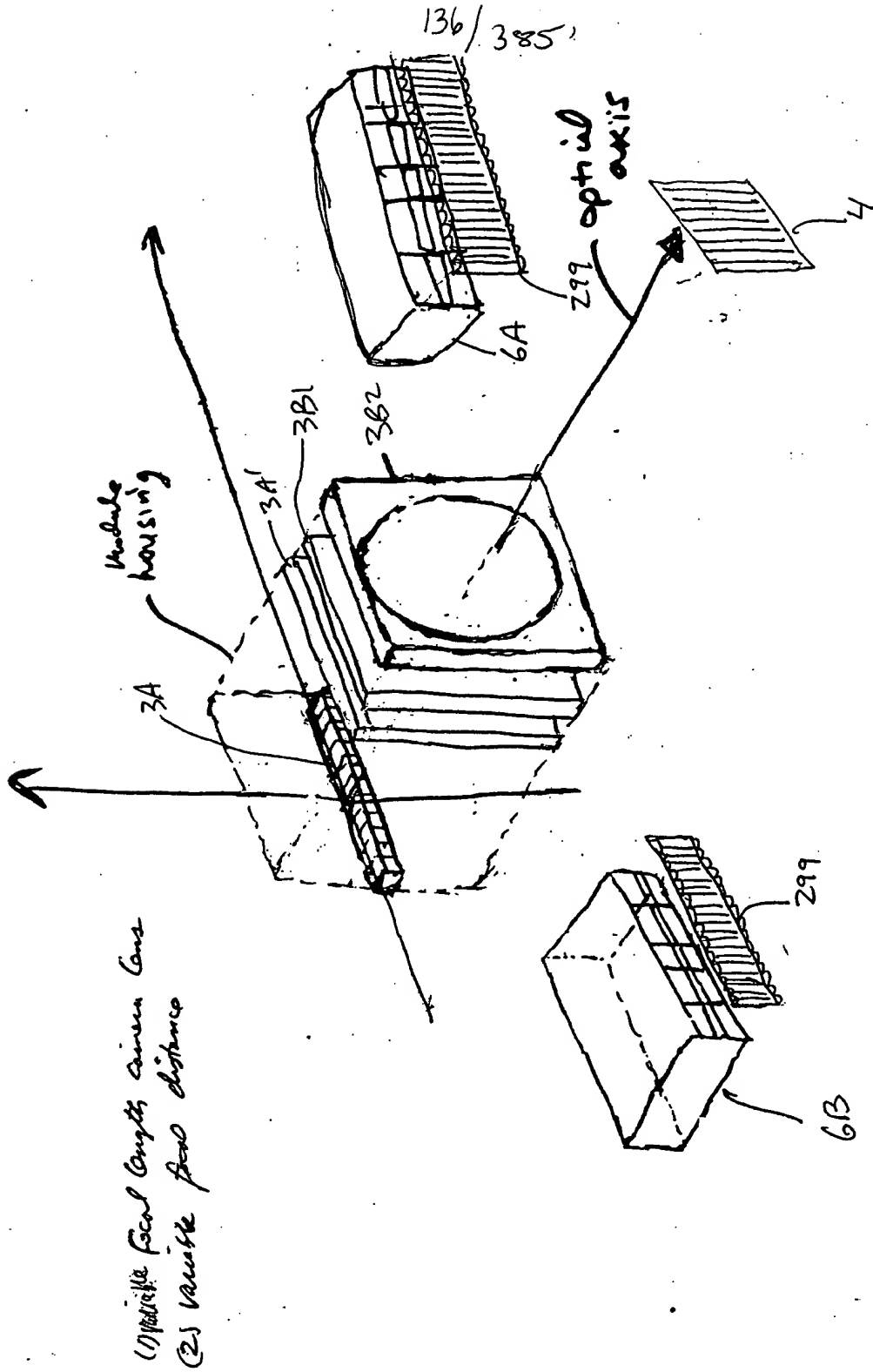


FIG. 3B2

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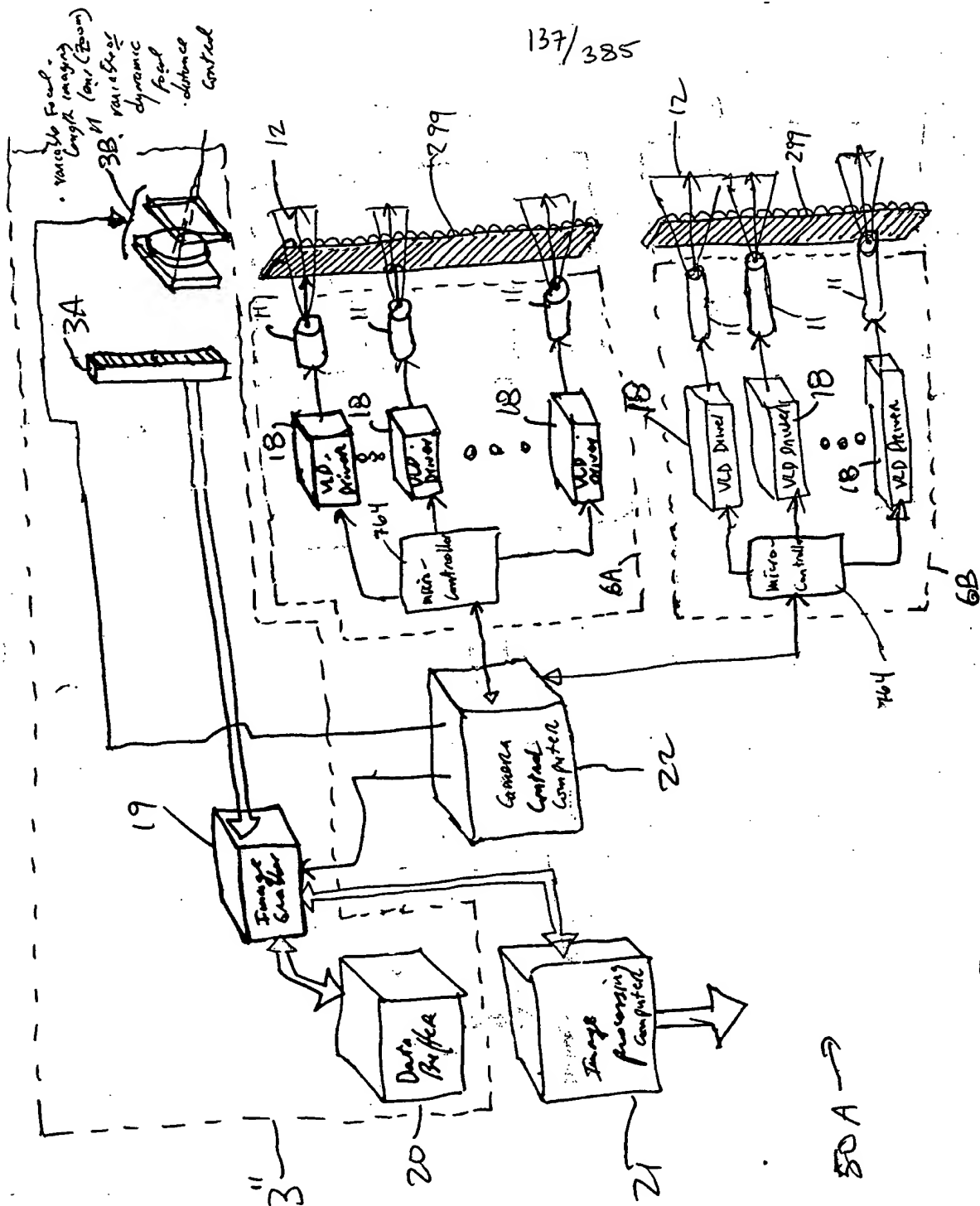


FIG 3C1

50A →

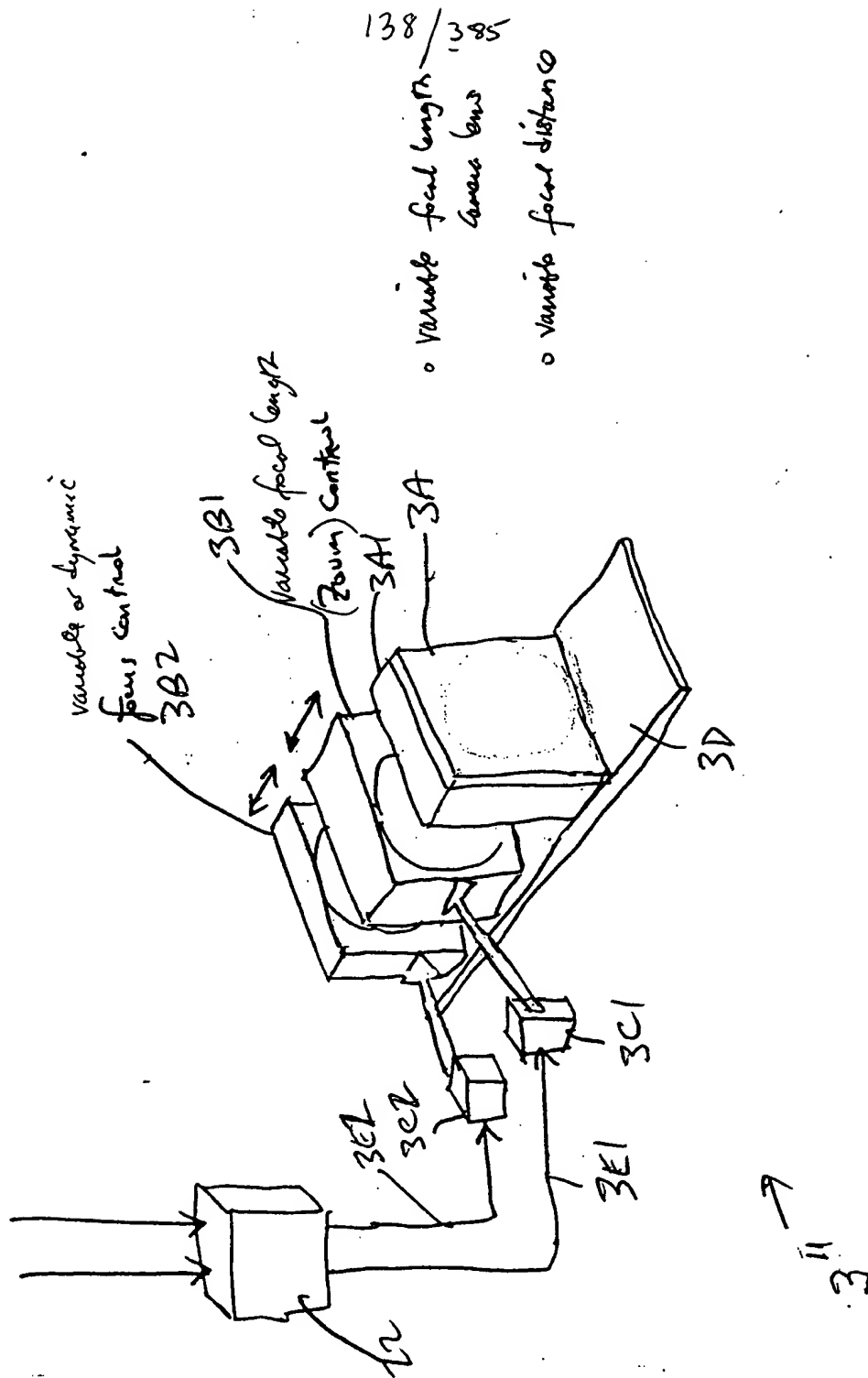
[illegible]

FIG. 3CZ

00000555 112101

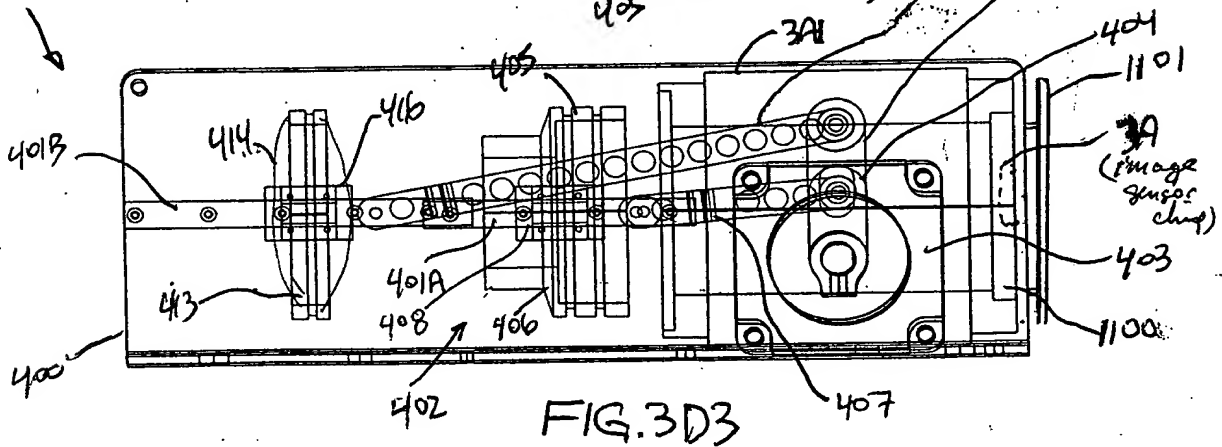
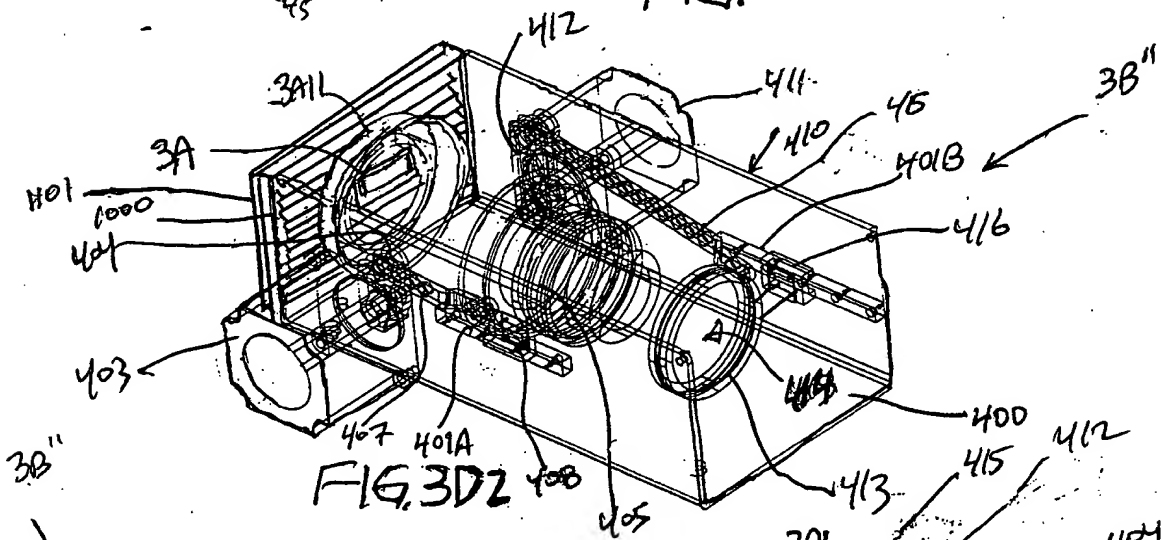
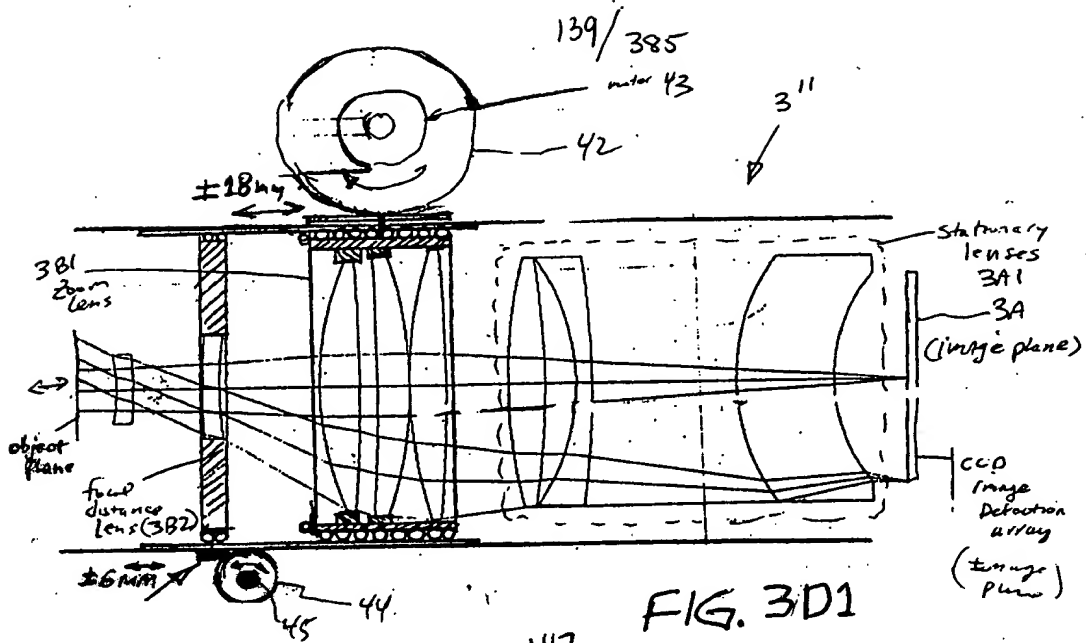


Figure 6. The effect of the initial concentration of the monomer (C_0) on the polymerization rate at different temperatures. The reaction conditions were as follows: $[AIBN] = 0.008 \text{ mol/L}$, $[K_2S_2O_8] = 0.008 \text{ mol/L}$, $[NaHCO_3] = 0.008 \text{ mol/L}$, $[NaHSO_3] = 0.008 \text{ mol/L}$, $[Na_2SO_3] = 0.008 \text{ mol/L}$, $[Na_2S_2O_4] = 0.008 \text{ mol/L}$, $[Na_2S_2O_5] = 0.008 \text{ mol/L}$, $[Na_2S_2O_8] = 0.008 \text{ mol/L}$, $[Na_2S_2O_7] = 0.008 \text{ mol/L}$, $[Na_2S_2O_6] = 0.008 \text{ mol/L}$, $[Na_2S_2O_3] = 0.008 \text{ mol/L}$, $[Na_2S_2O_2] = 0.008 \text{ mol/L}$, $[Na_2S_2O} = 0.008 \text{ mol/L}$.

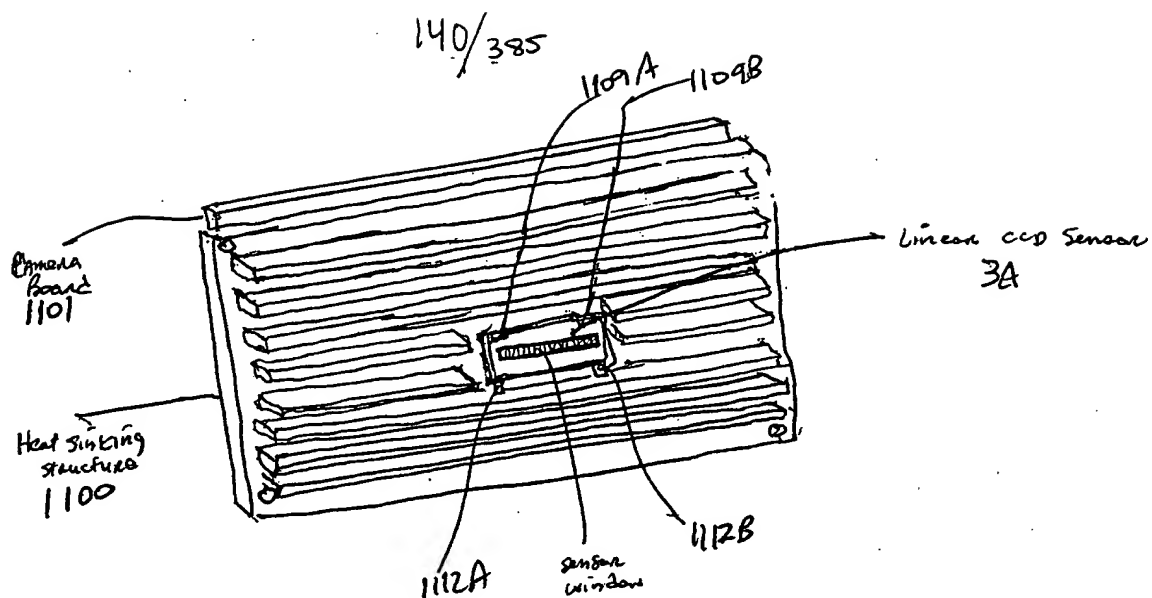
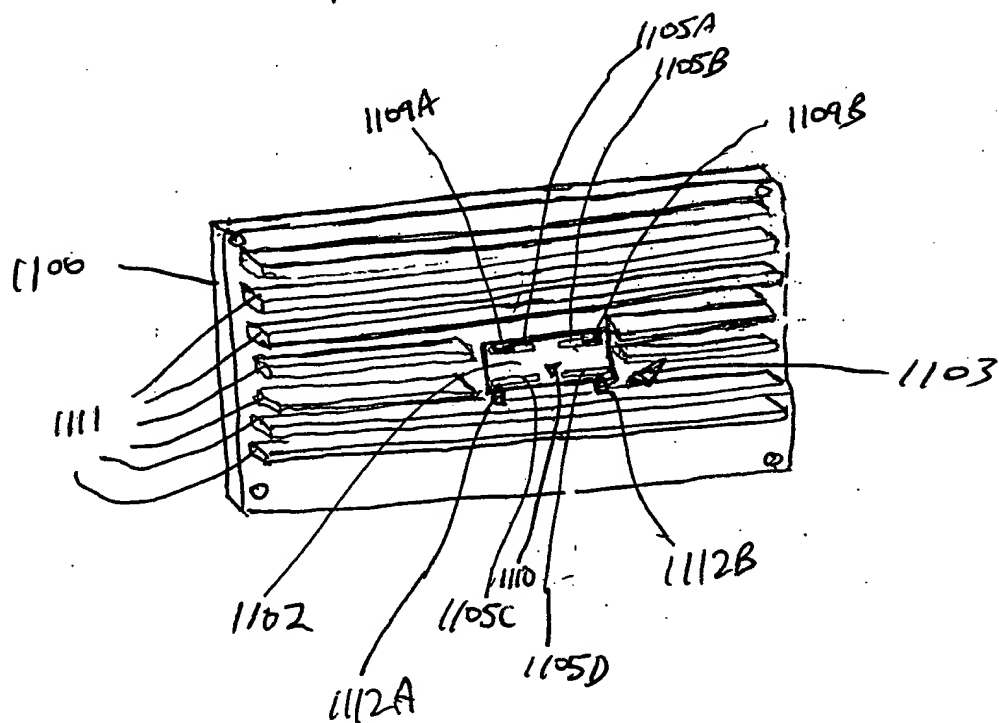


FIG. 3D4



F1 G. 3D5

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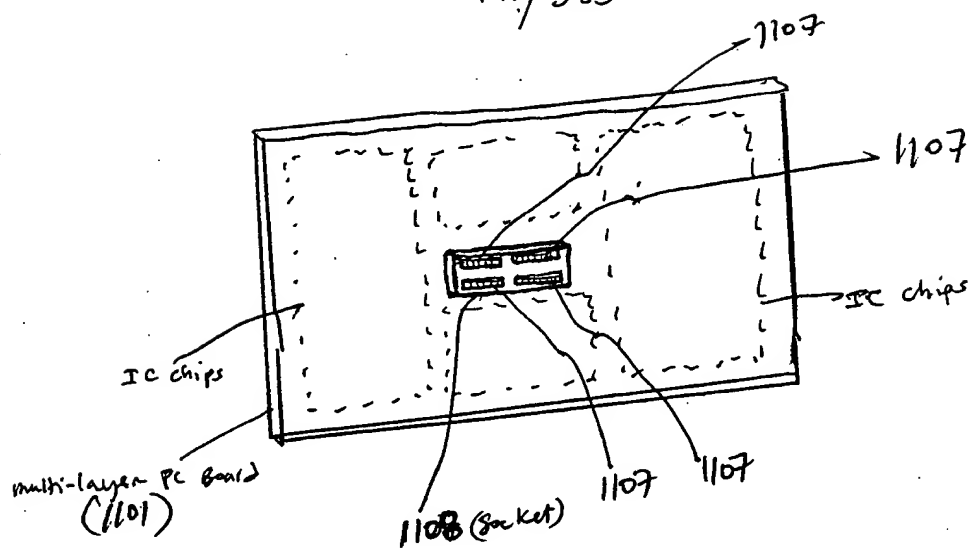


FIG. 3D6

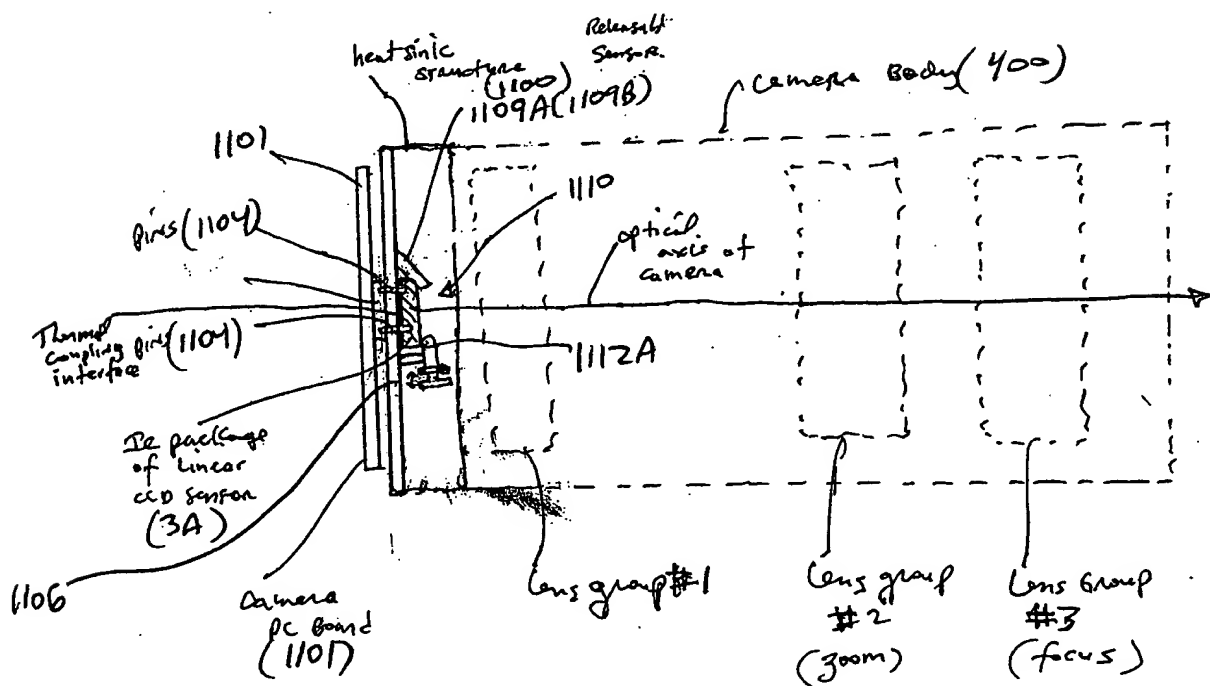


FIG. 3D7

[illegible]

FIG. 3E1

Altitude	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	7500	8000	8500	9000	9500	10000
Altitude	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	7500	8000	8500	9000	9500	10000

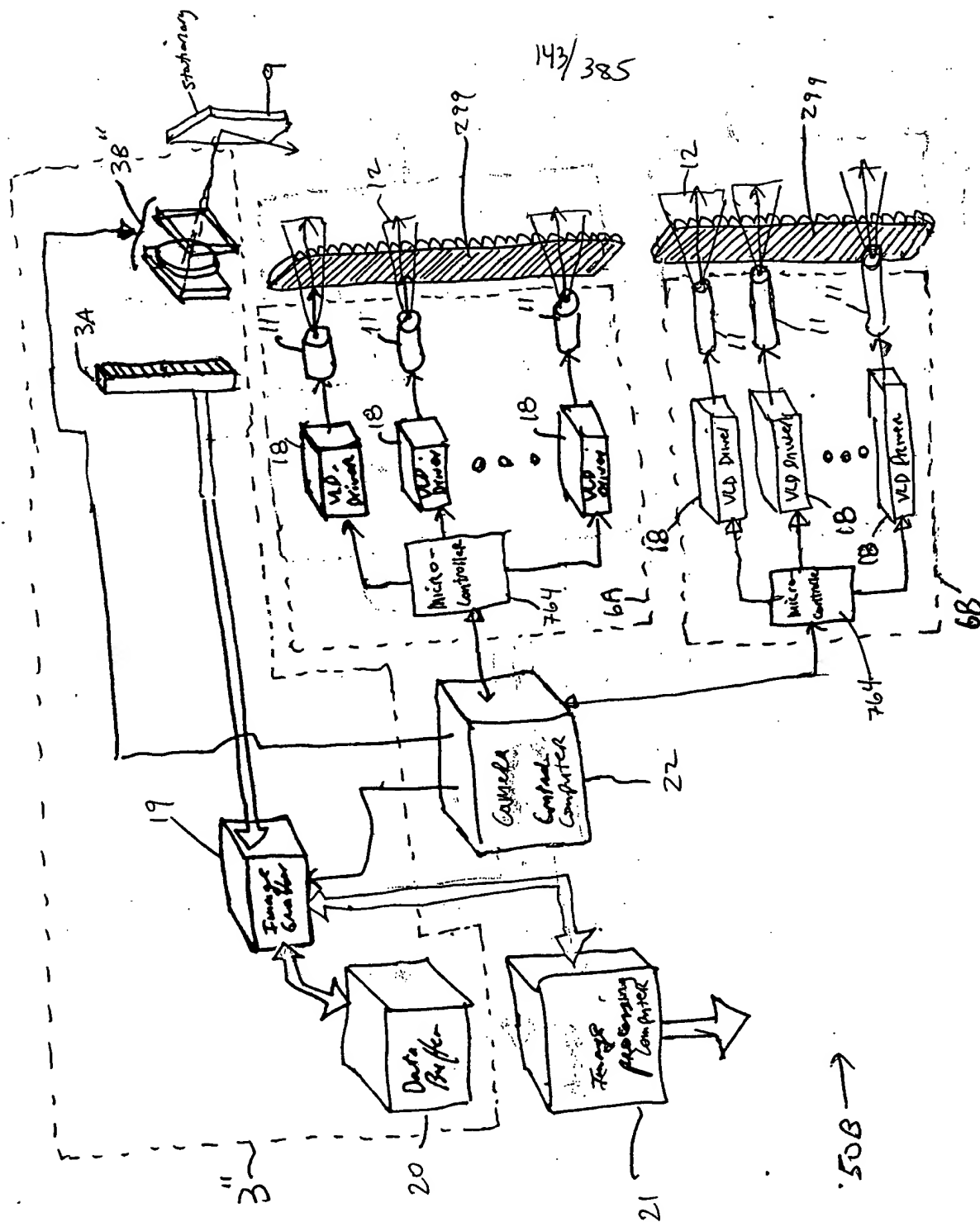


FIG. 3E2

TTTTTSSSSSSSS

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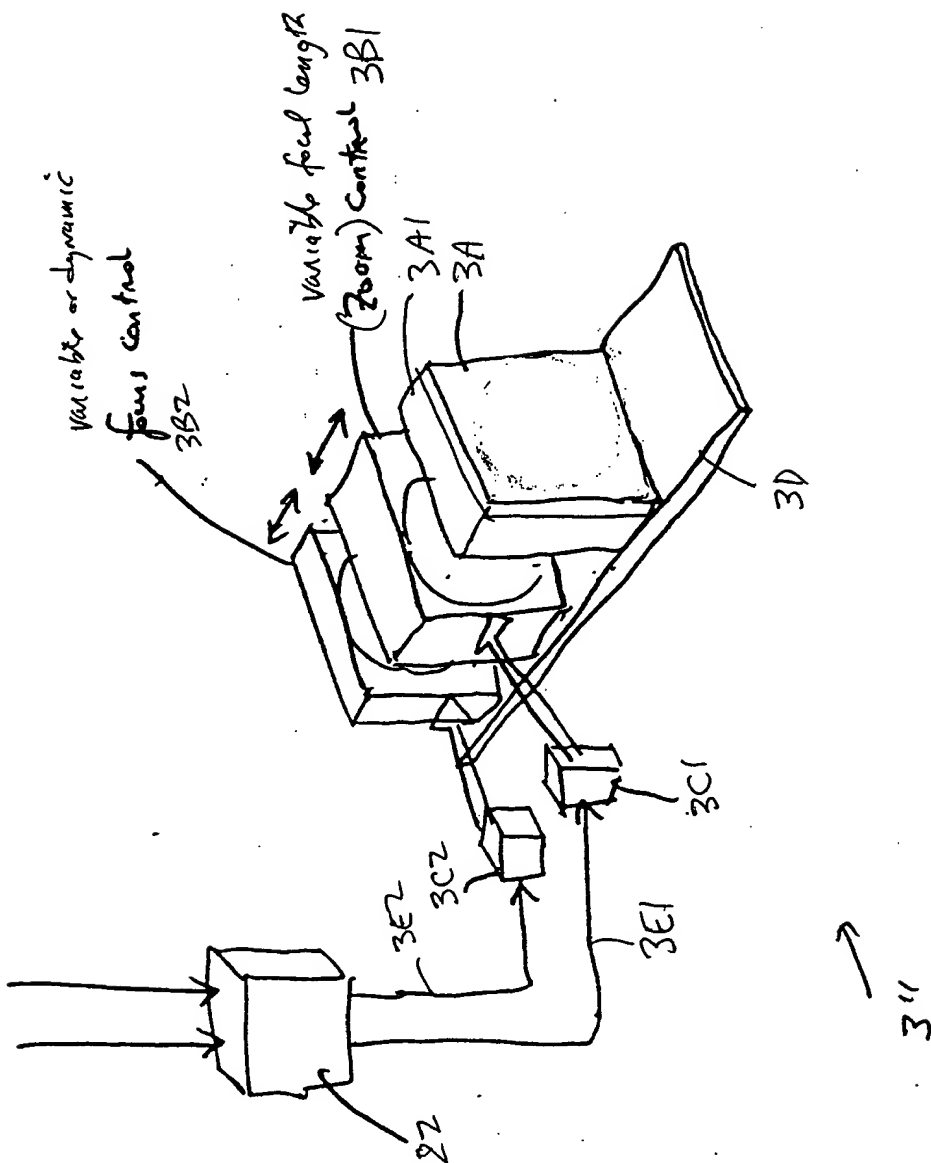


FIG. 3E3

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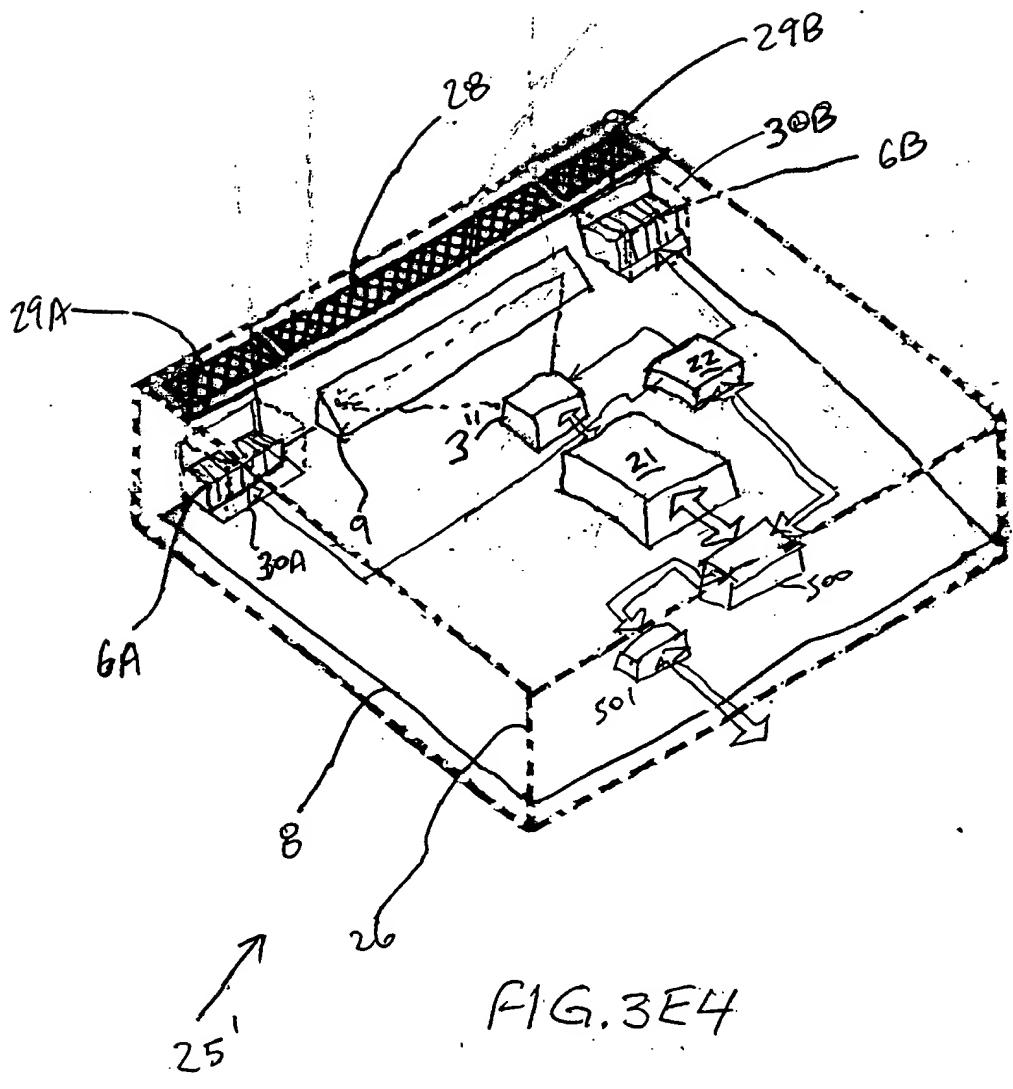


FIG. 3E4

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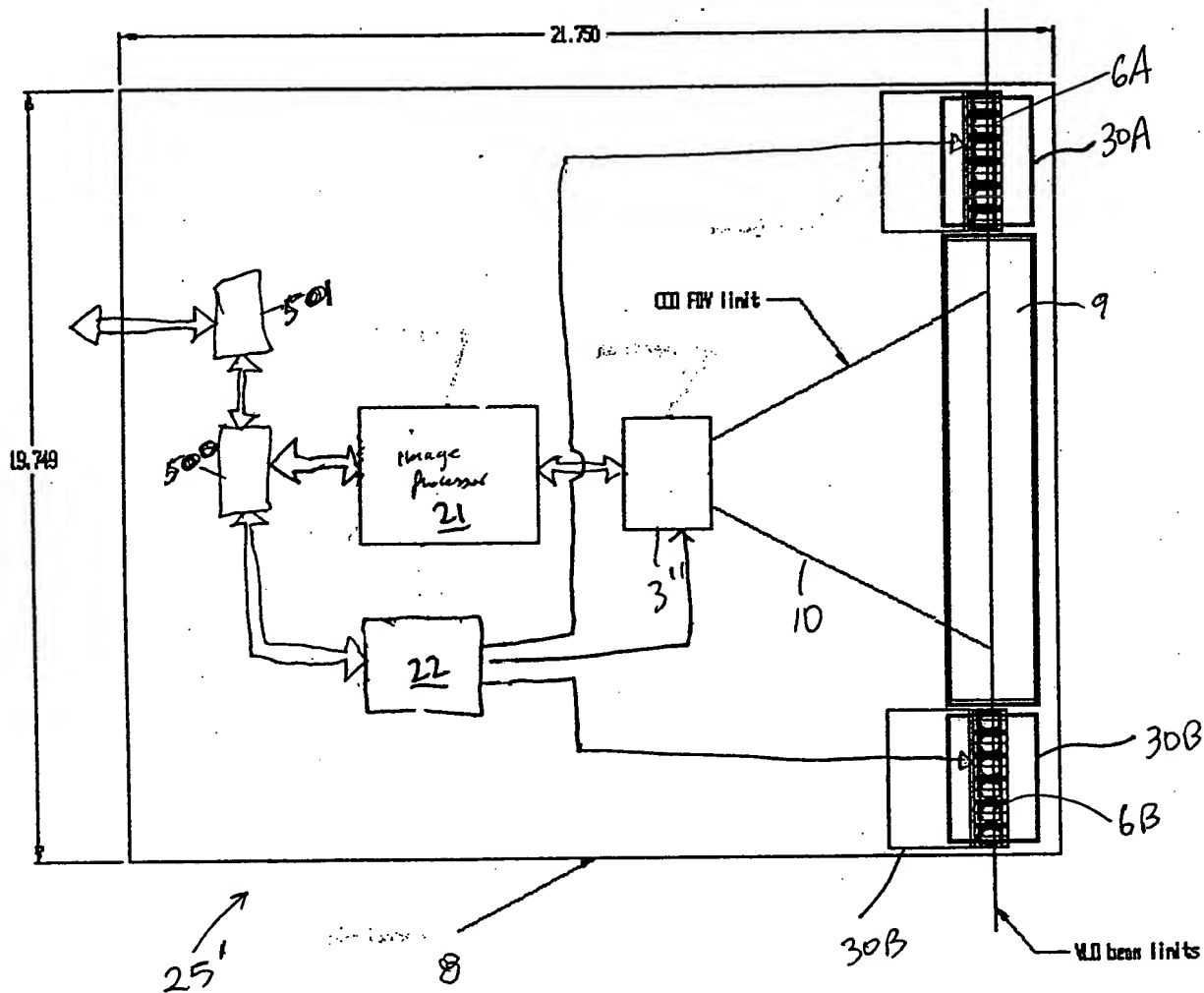


FIG. 3E5

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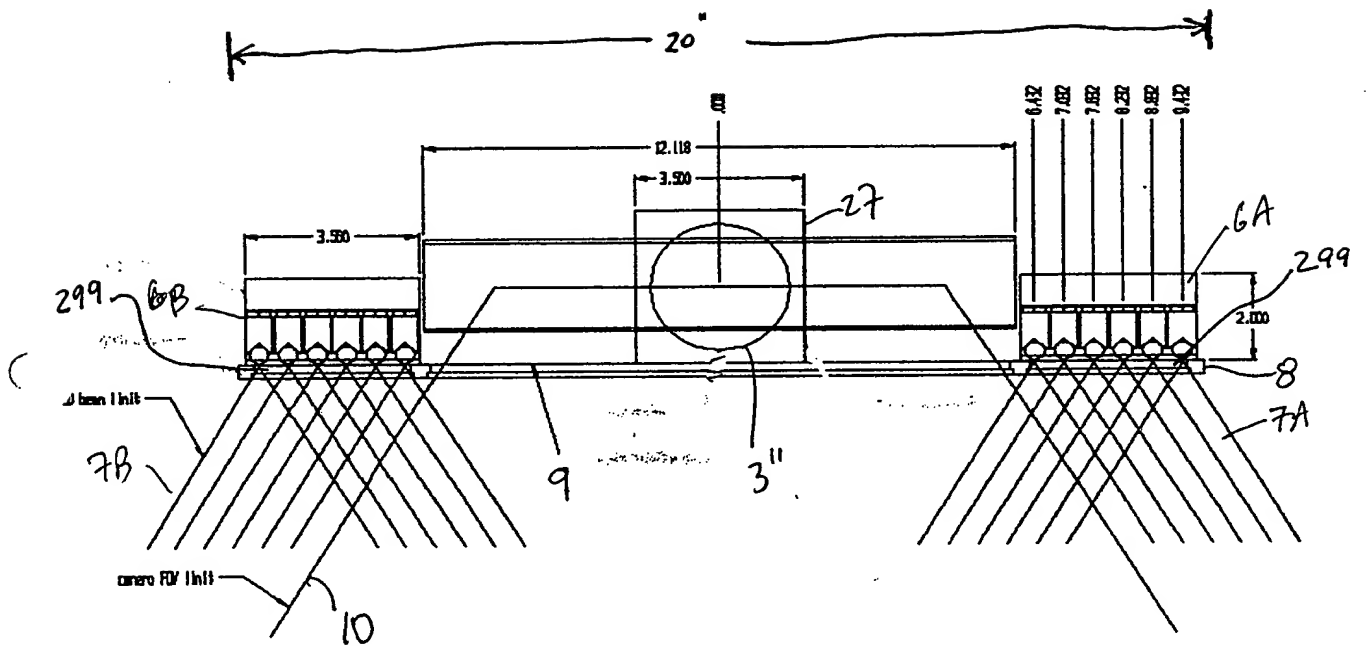


FIG. 3E6

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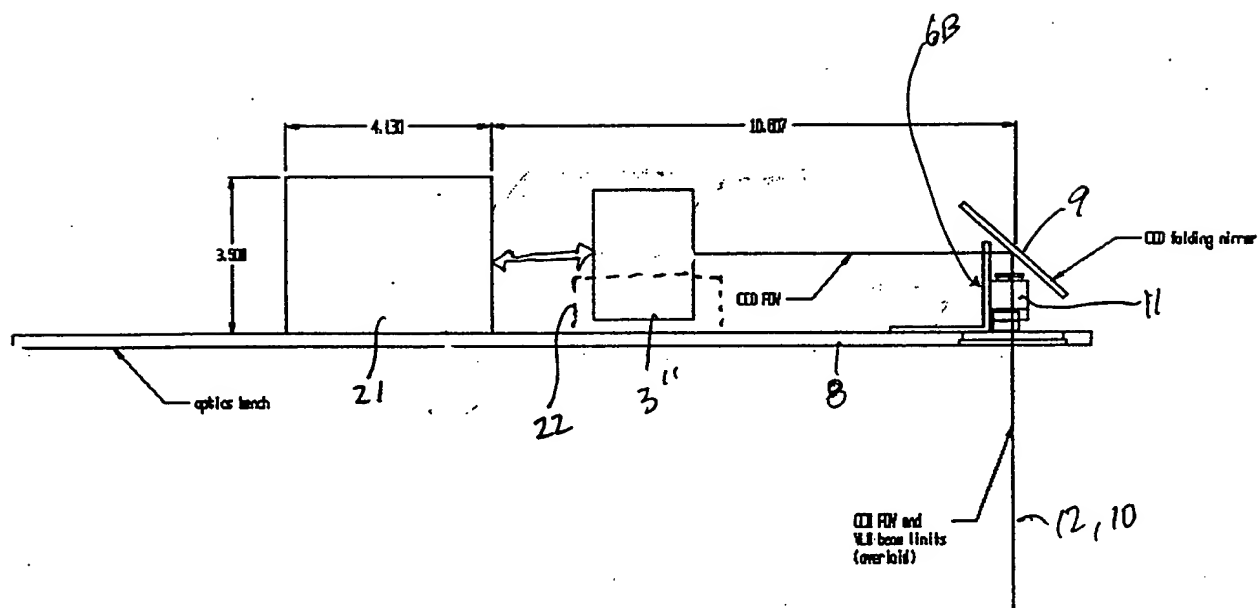


FIG. 3E7

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*Variable FOV

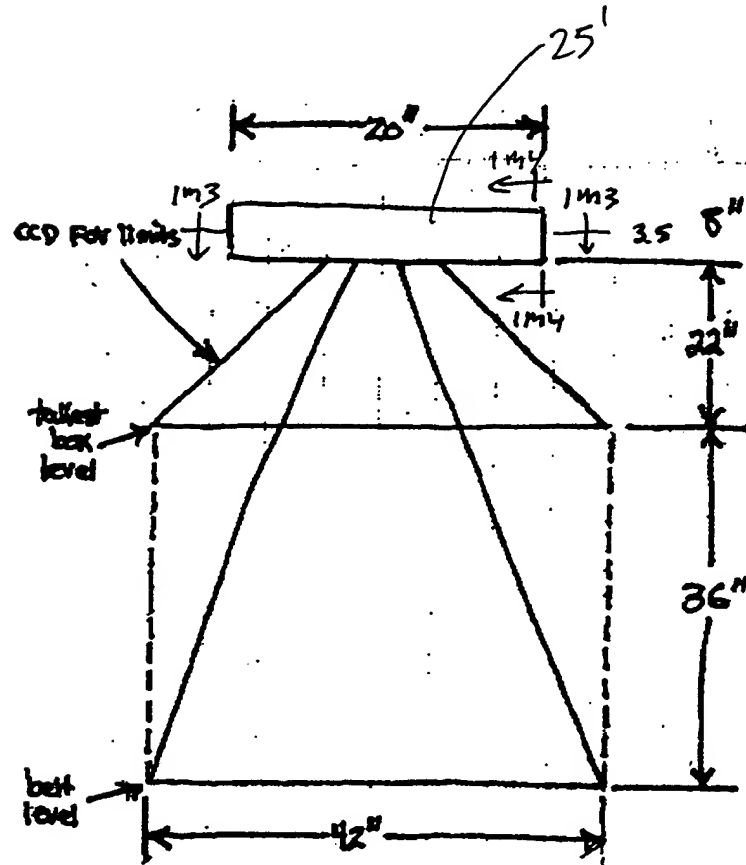


FIG. 3E8

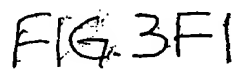
[illegible]

FIG. 3F1

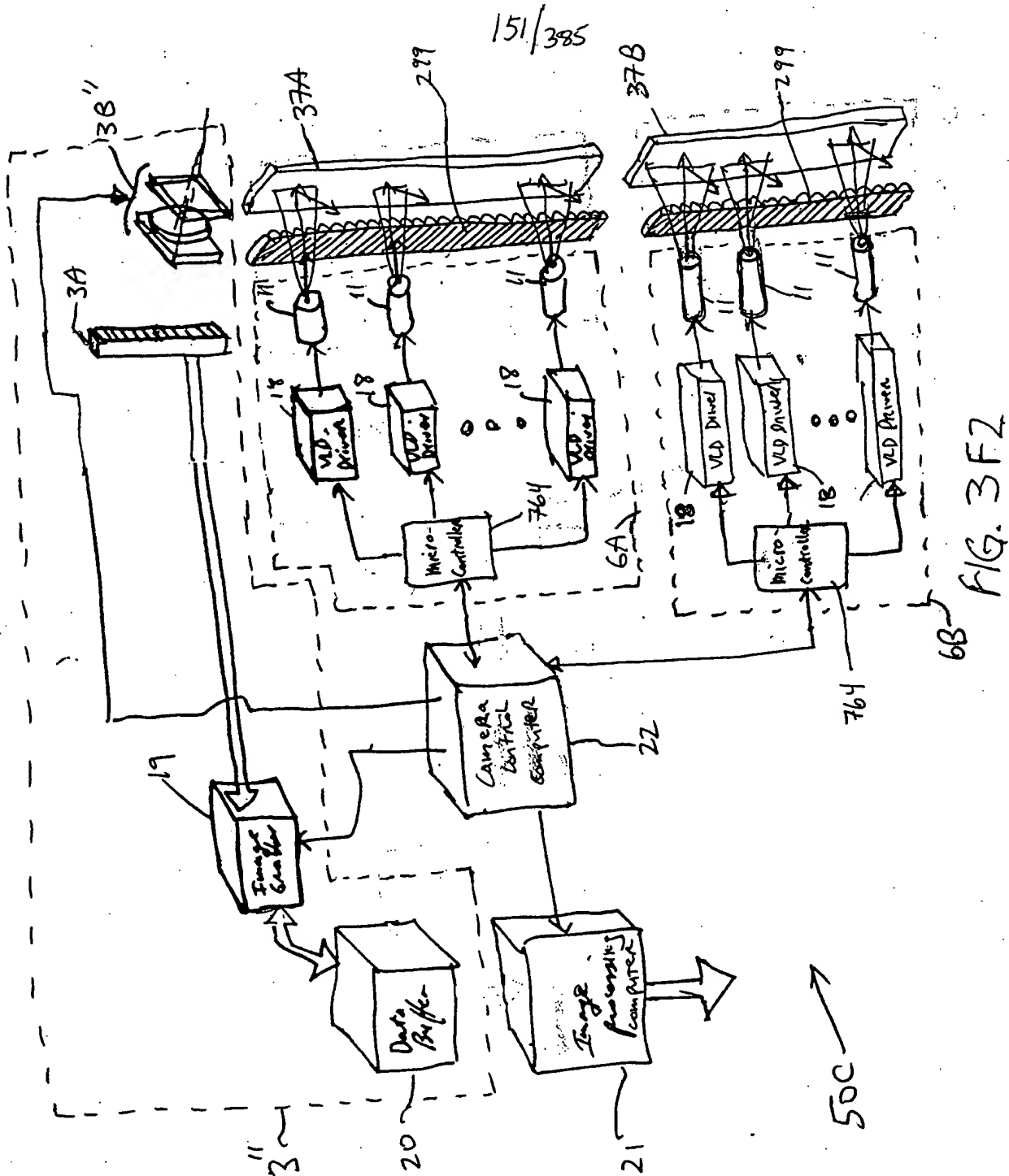


FIG. 3F3

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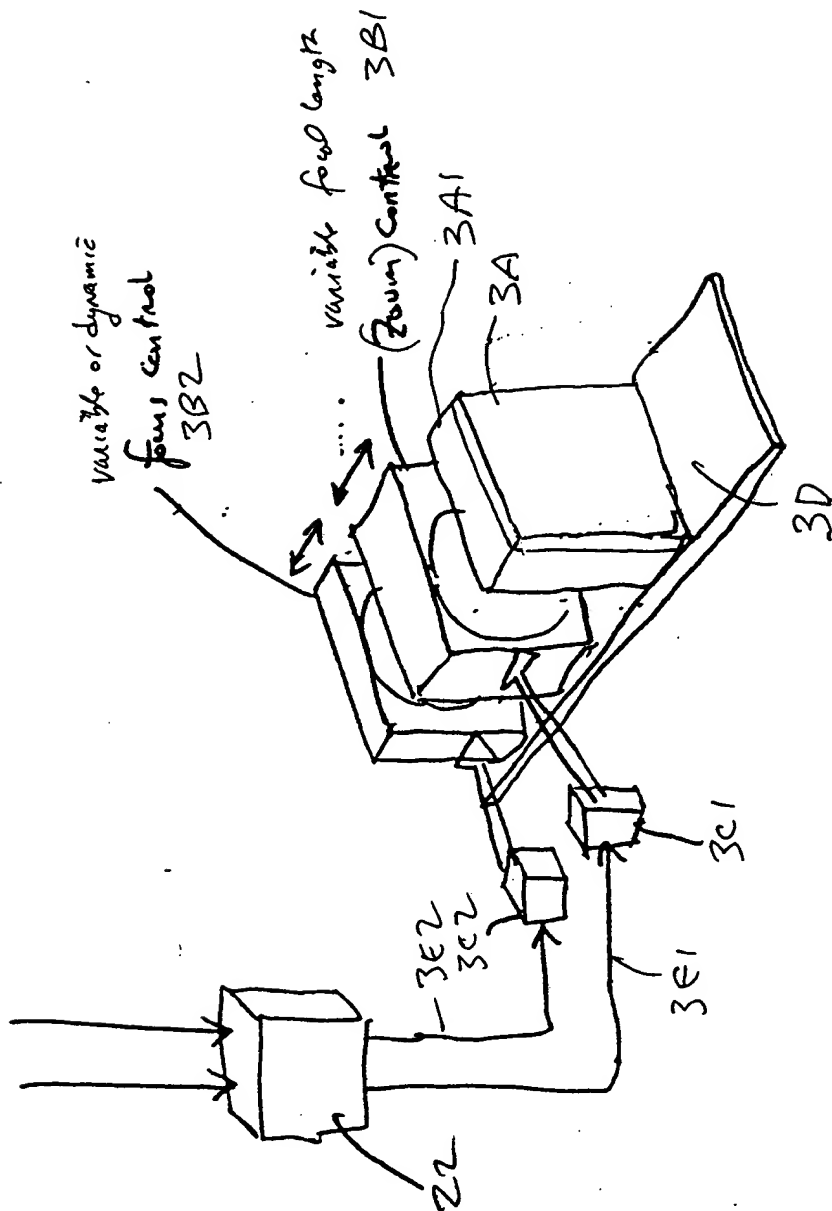


FIG. 3F3

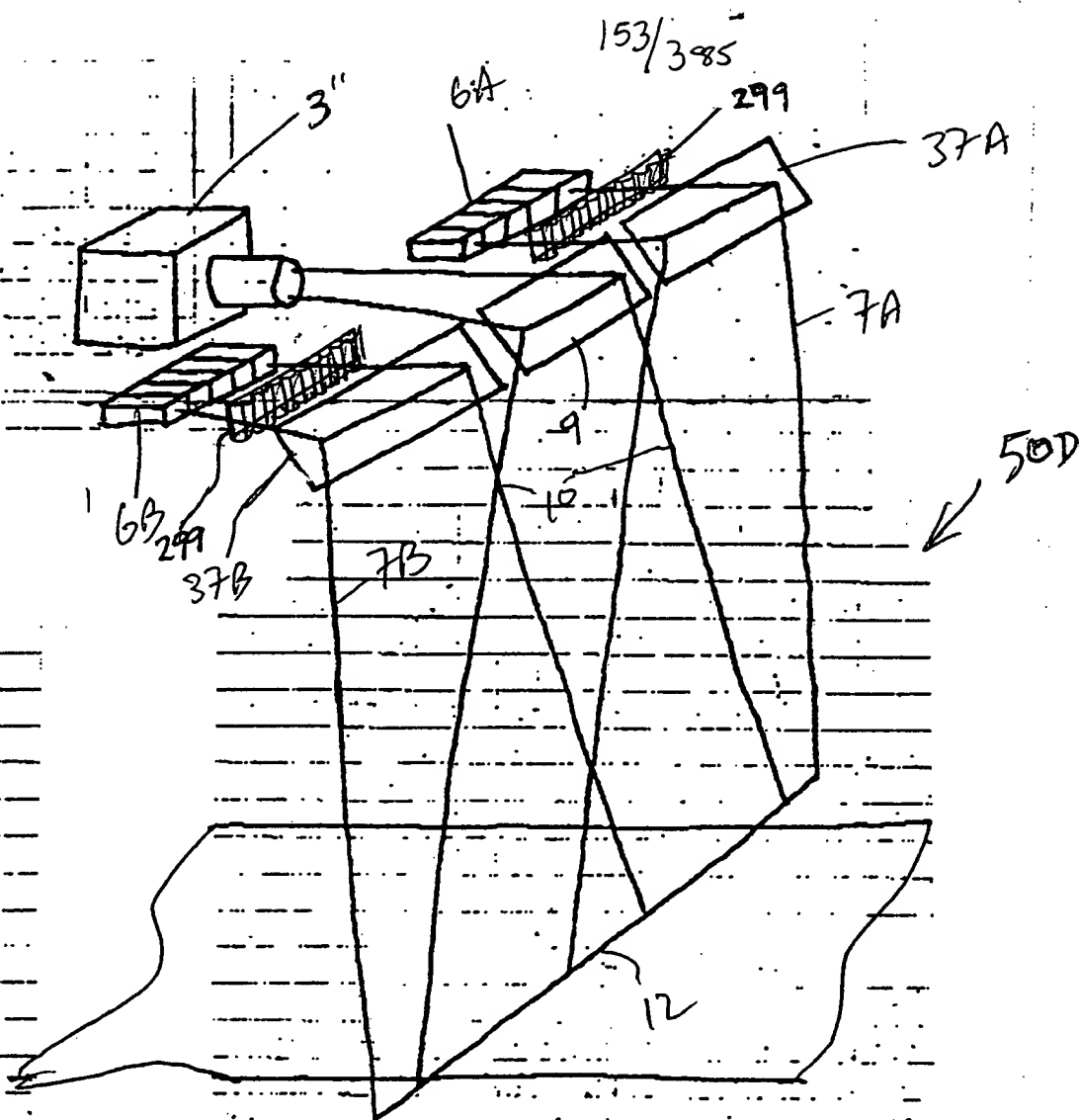
[illegible]

FIG. 3G1

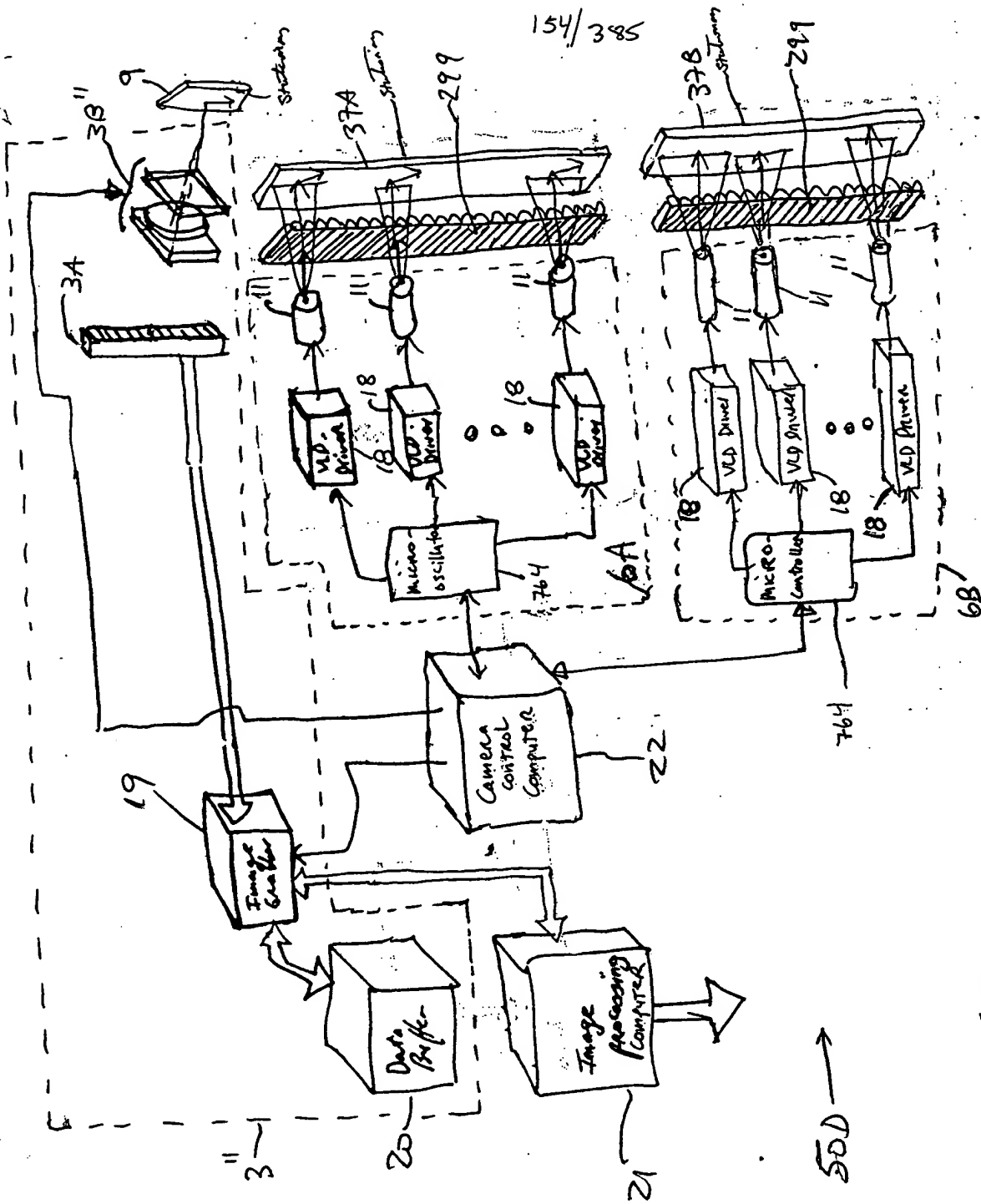


FIG. 362

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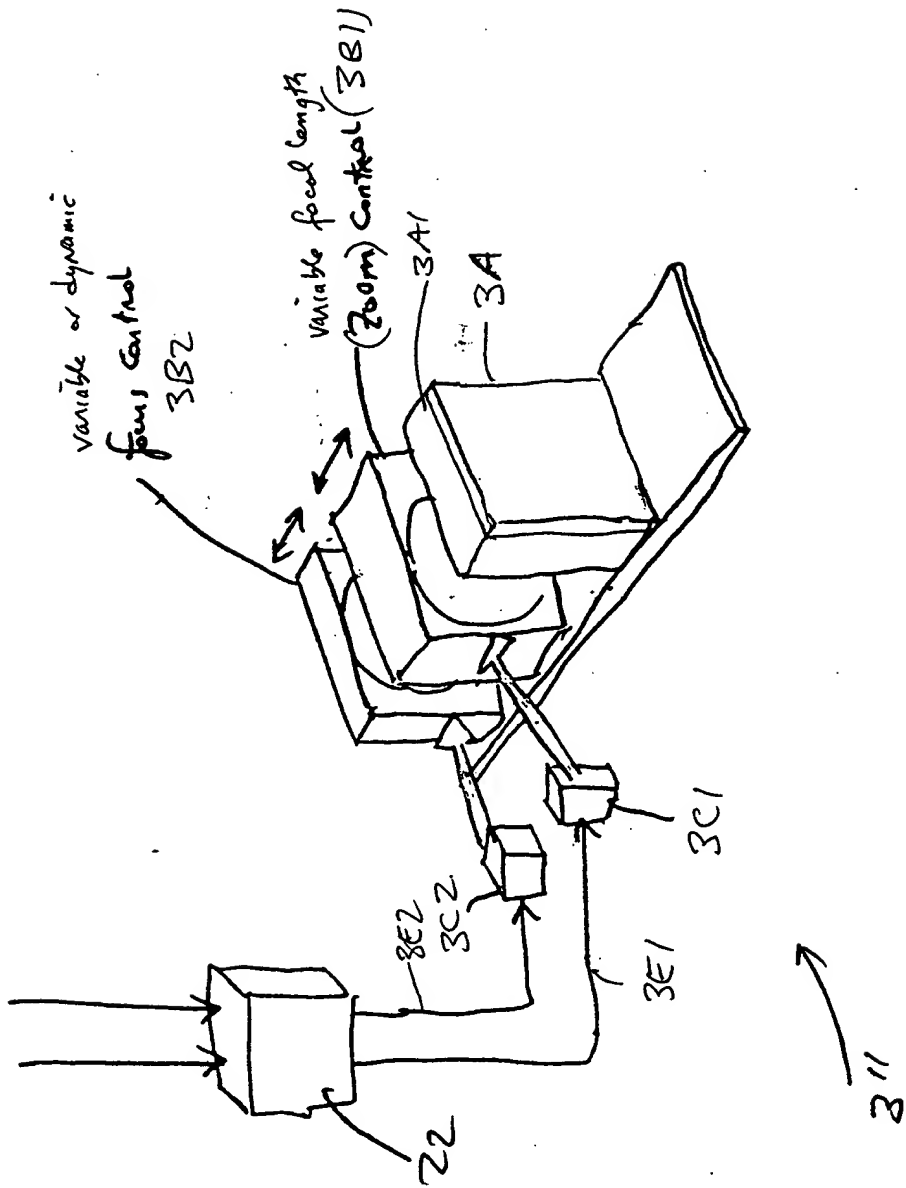


FIG. 3Q3

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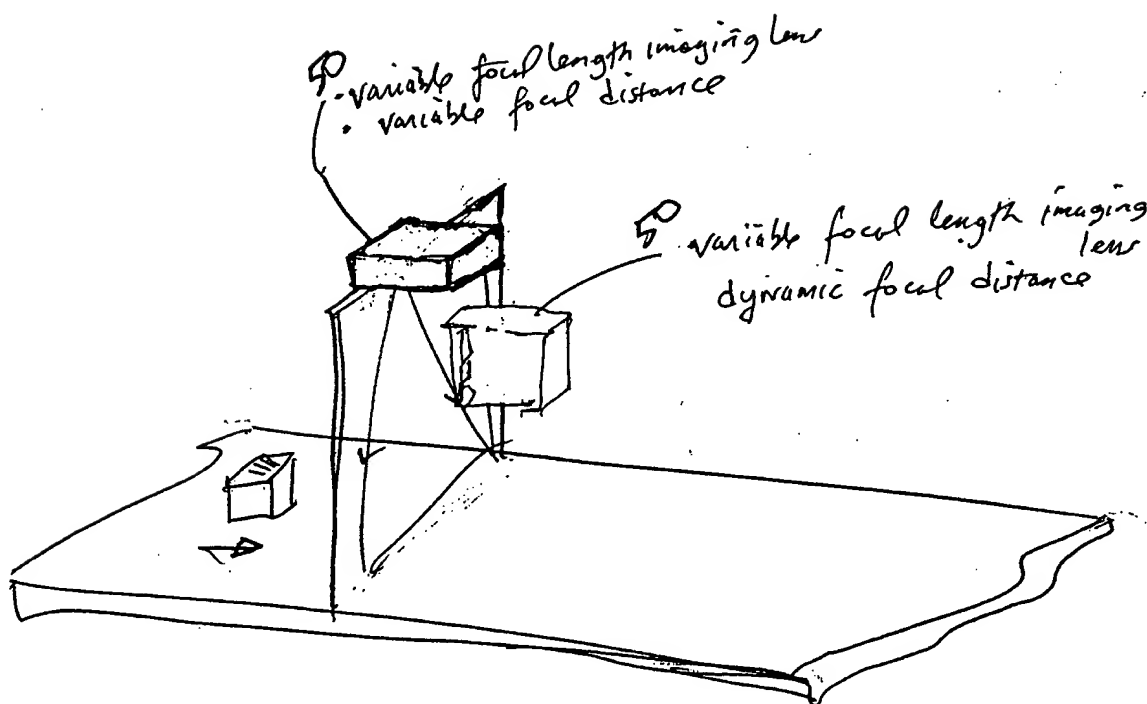


FIG. 3H

FIG. 3I

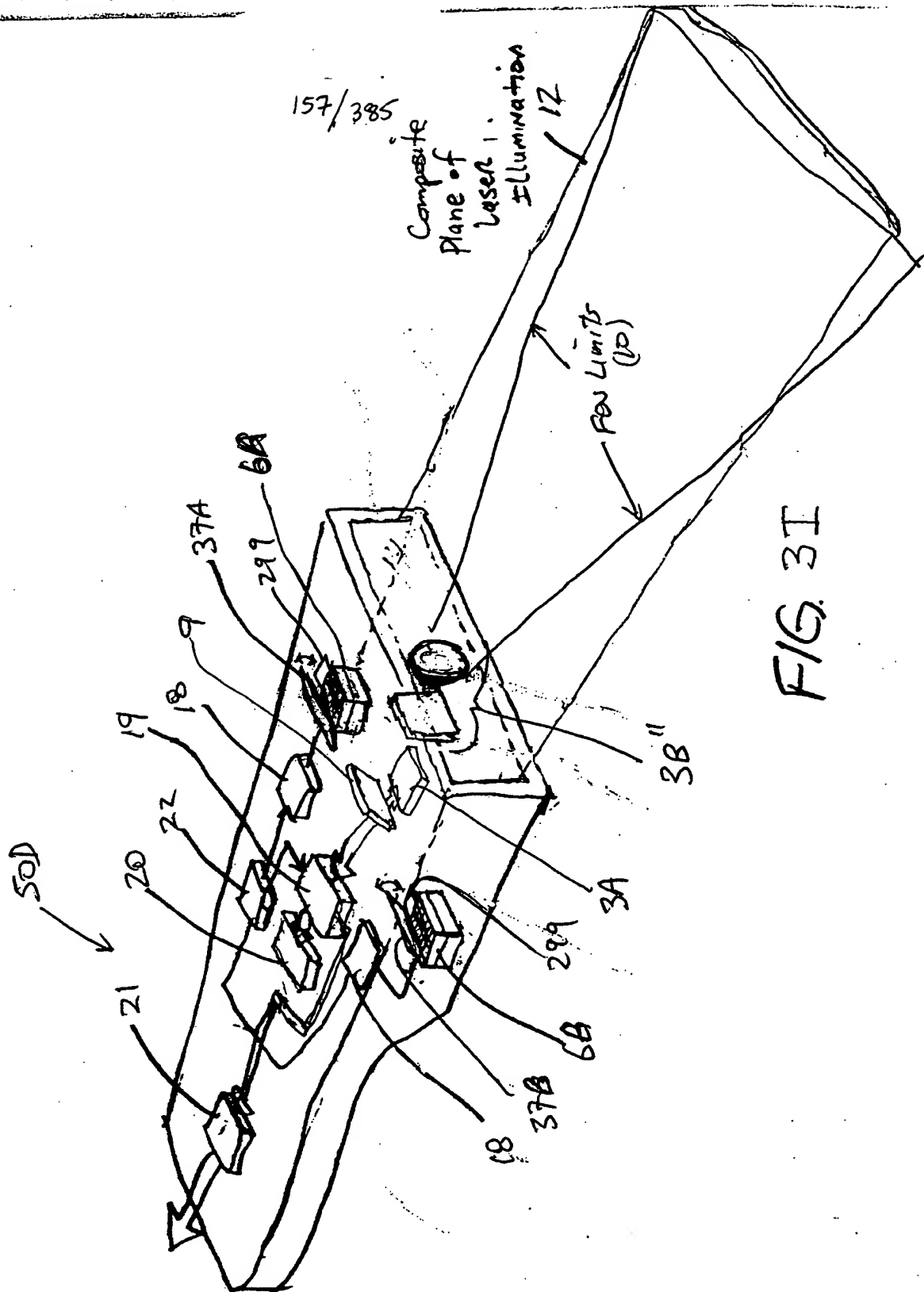


FIG. 3I

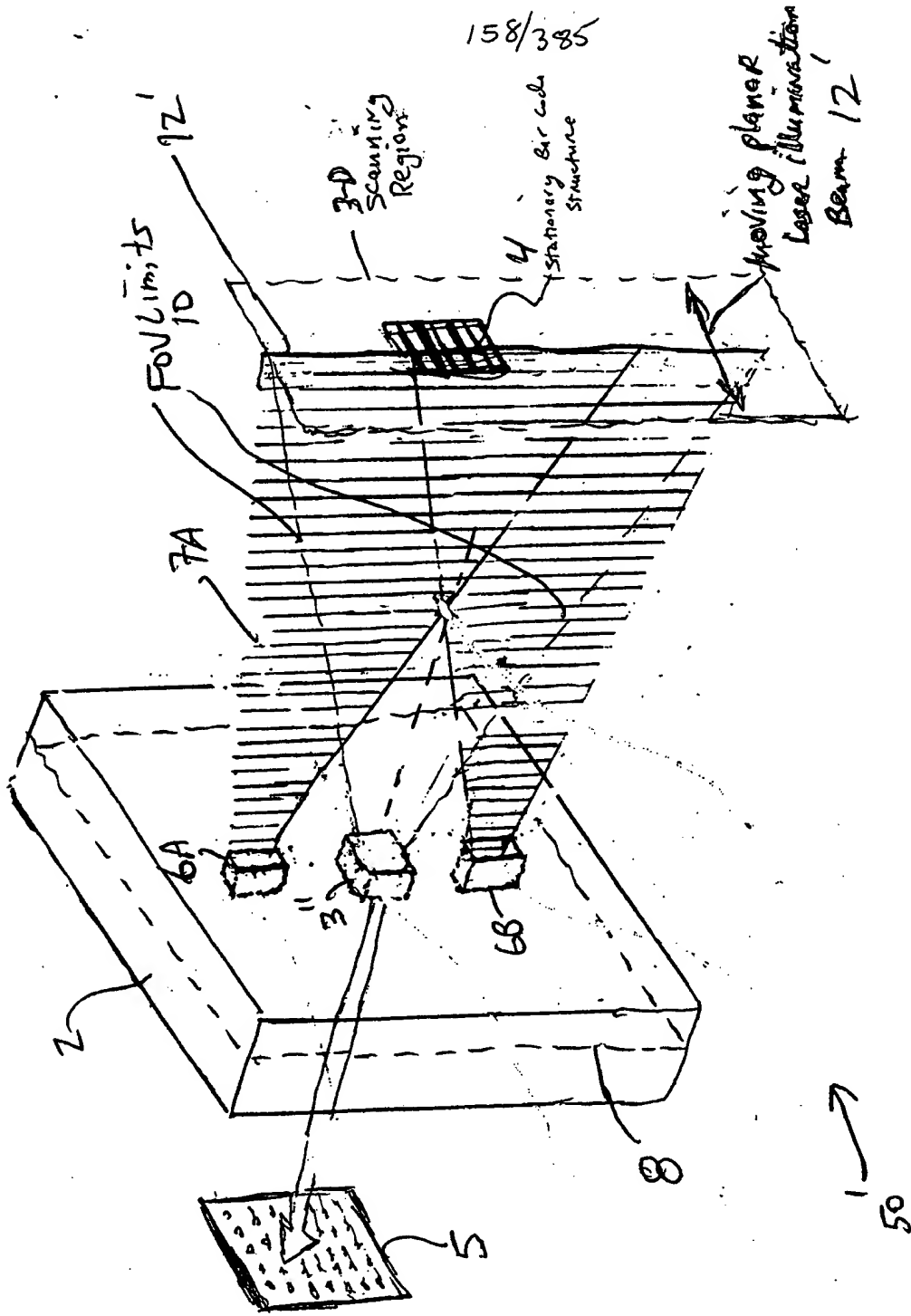


FIG. 3J

0990585 4304
TOT 5250560

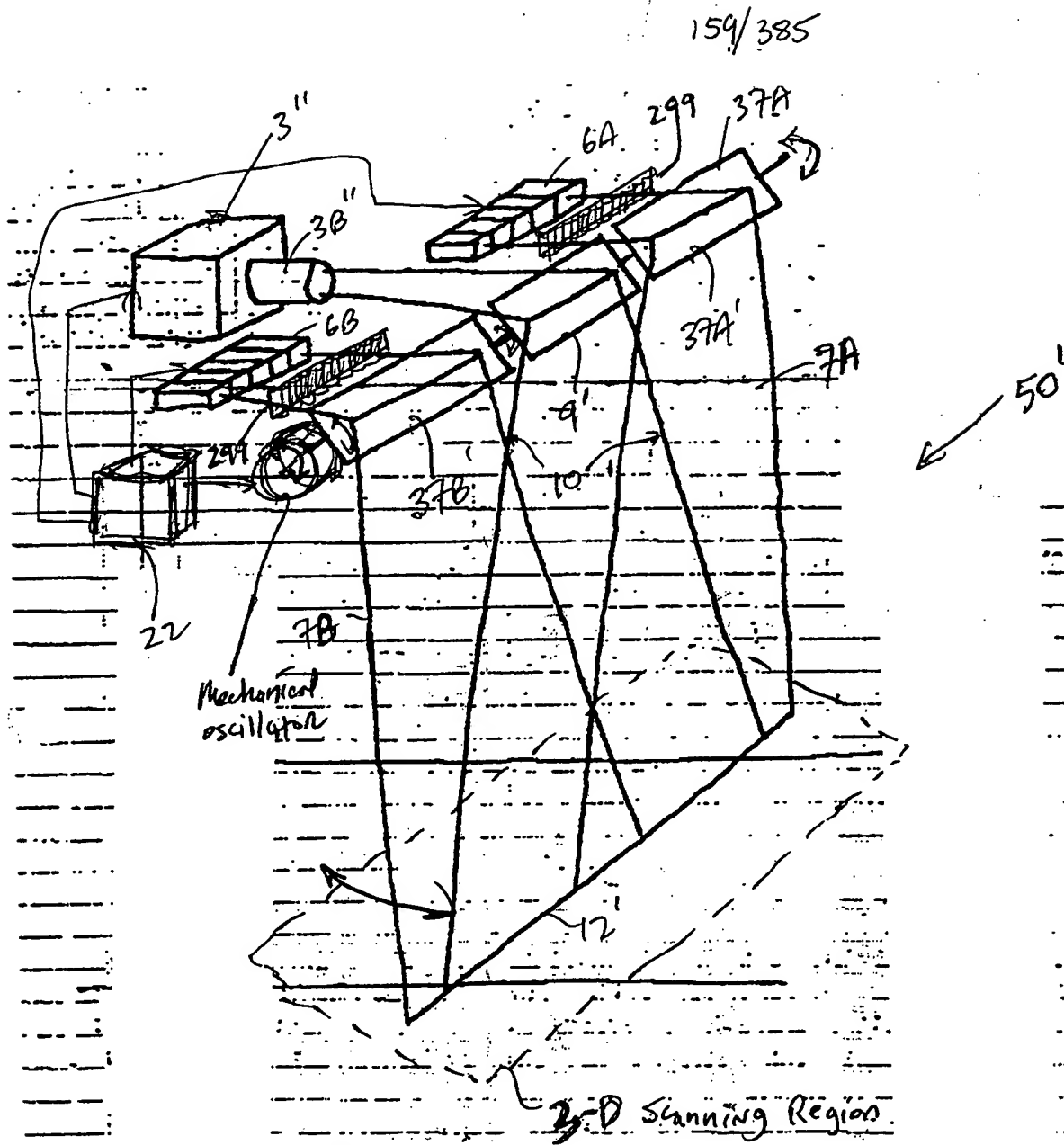
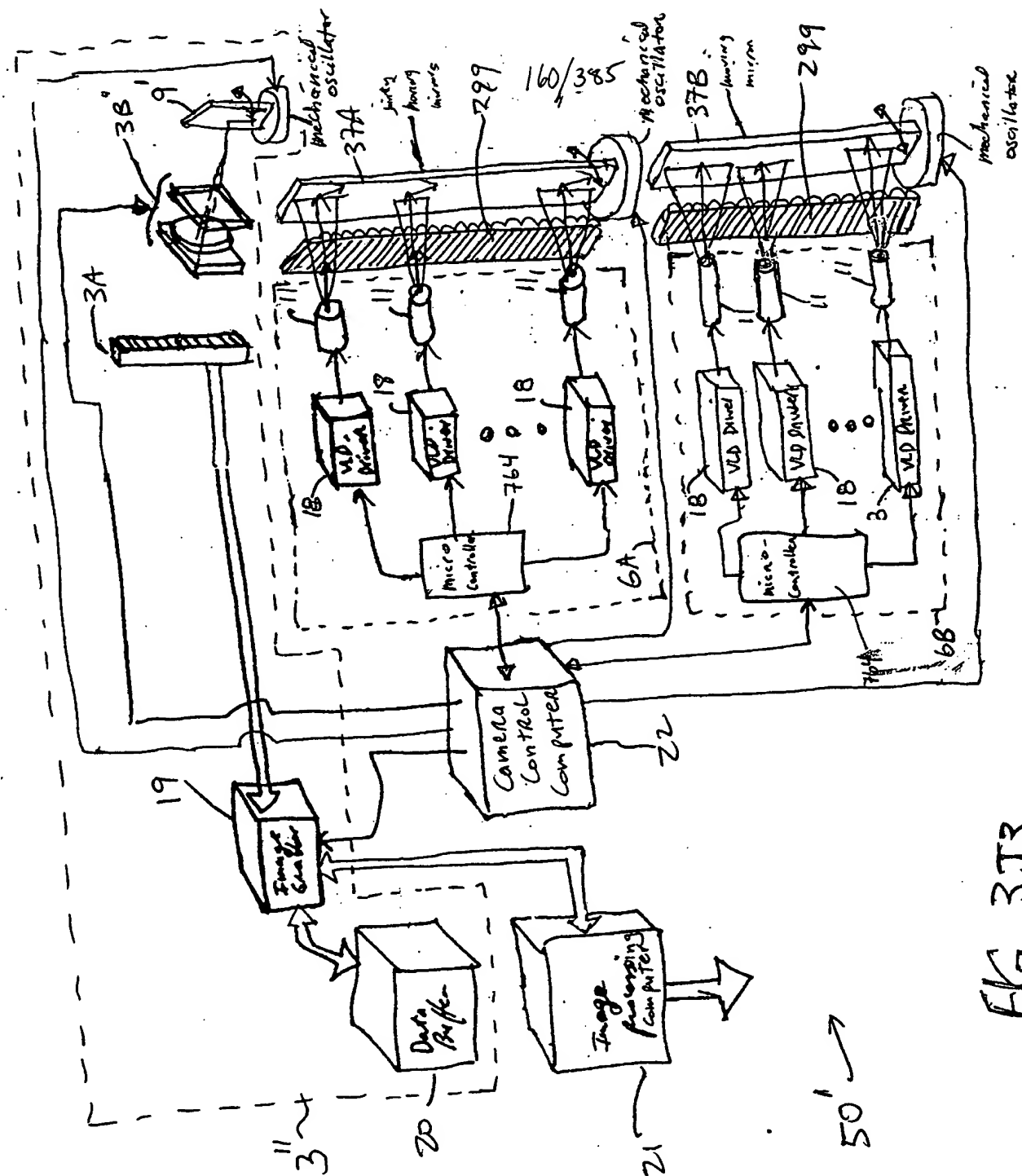


FIG 3J2

	23°	25°	27°	29°	31°	33°	35°	37°	39°	41°	43°	45°	47°	49°	51°	53°	55°	57°	59°	61°	63°	65°	67°	69°	71°	73°	75°	77°	79°	81°	83°	85°	87°	89°	91°	93°	95°	97°	99°	101°	103°	105°	107°	109°	111°	113°	115°	117°	119°	121°	123°	125°	127°	129°	131°	133°	135°	137°	139°	141°	143°	145°	147°	149°	151°	153°	155°	157°	159°	161°	163°	165°	167°	169°	171°	173°	175°	177°	179°	181°	183°	185°	187°	189°	191°	193°	195°	197°	199°	201°	203°	205°	207°	209°	211°	213°	215°	217°	219°	221°	223°	225°	227°	229°	231°	233°	235°	237°	239°	241°	243°	245°	247°	249°	251°	253°	255°	257°	259°	261°	263°	265°	267°	269°	271°	273°	275°	277°	279°	281°	283°	285°	287°	289°	291°	293°	295°	297°	299°	301°	303°	305°	307°	309°	311°	313°	315°	317°	319°	321°	323°	325°	327°	329°	331°	333°	335°	337°	339°	341°	343°	345°	347°	349°	351°	353°	355°	357°	359°	361°	363°	365°	367°	369°	371°	373°	375°	377°	379°	381°	383°	385°	387°	389°	391°	393°	395°	397°	399°	401°	403°	405°	407°	409°	411°	413°	415°	417°	419°	421°	423°	425°	427°	429°	431°	433°	435°	437°	439°	441°	443°	445°	447°	449°	451°	453°	455°	457°	459°	461°	463°	465°	467°	469°	471°	473°	475°	477°	479°	481°	483°	485°	487°	489°	491°	493°	495°	497°	499°	501°	503°	505°	507°	509°	511°	513°	515°	517°	519°	521°	523°	525°	527°	529°	531°	533°	535°	537°	539°	541°	543°	545°	547°	549°	551°	553°	555°	557°	559°	561°	563°	565°	567°	569°	571°	573°	575°	577°	579°	581°	583°	585°	587°	589°	591°	593°	595°	597°	599°	601°	603°	605°	607°	609°	611°	613°	615°	617°	619°	621°	623°	625°	627°	629°	631°	633°	635°	637°	639°	641°	643°	645°	647°	649°	651°	653°	655°	657°	659°	661°	663°	665°	667°	669°	671°	673°	675°	677°	679°	681°	683°	685°	687°	689°	691°	693°	695°	697°	699°	701°	703°	705°	707°	709°	711°	713°	715°	717°	719°	721°	723°	725°	727°	729°	731°	733°	735°	737°	739°	741°	743°	745°	747°	749°	751°	753°	755°	757°	759°	761°	763°	765°	767°	769°	771°	773°	775°	777°	779°	781°	783°	785°	787°	789°	791°	793°	795°	797°	799°	801°	803°	805°	807°	809°	811°	813°	815°	817°	819°	821°	823°	825°	827°	829°	831°	833°	835°	837°	839°	841°	843°	845°
--	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------



353
F/G

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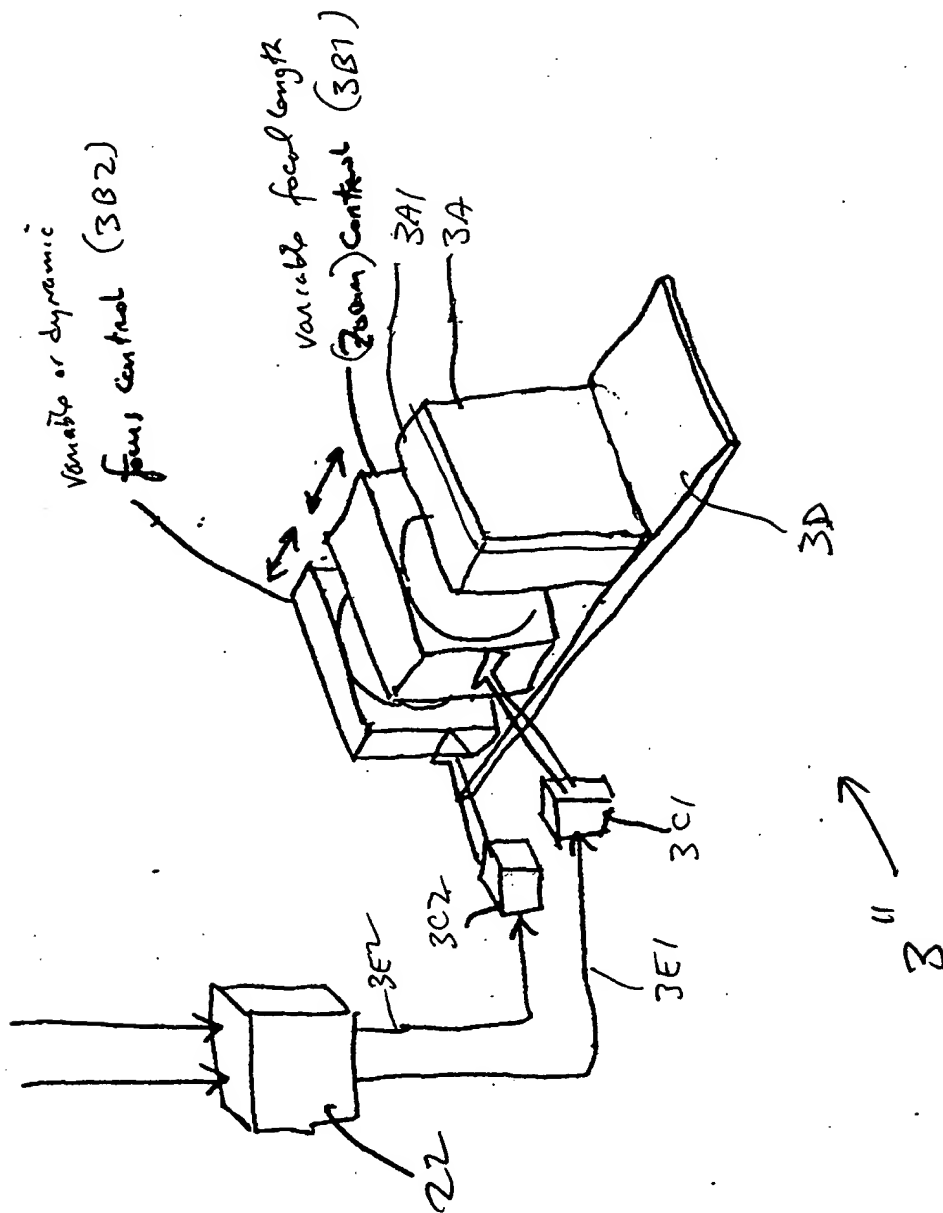


FIG. 354

FIG. 3B

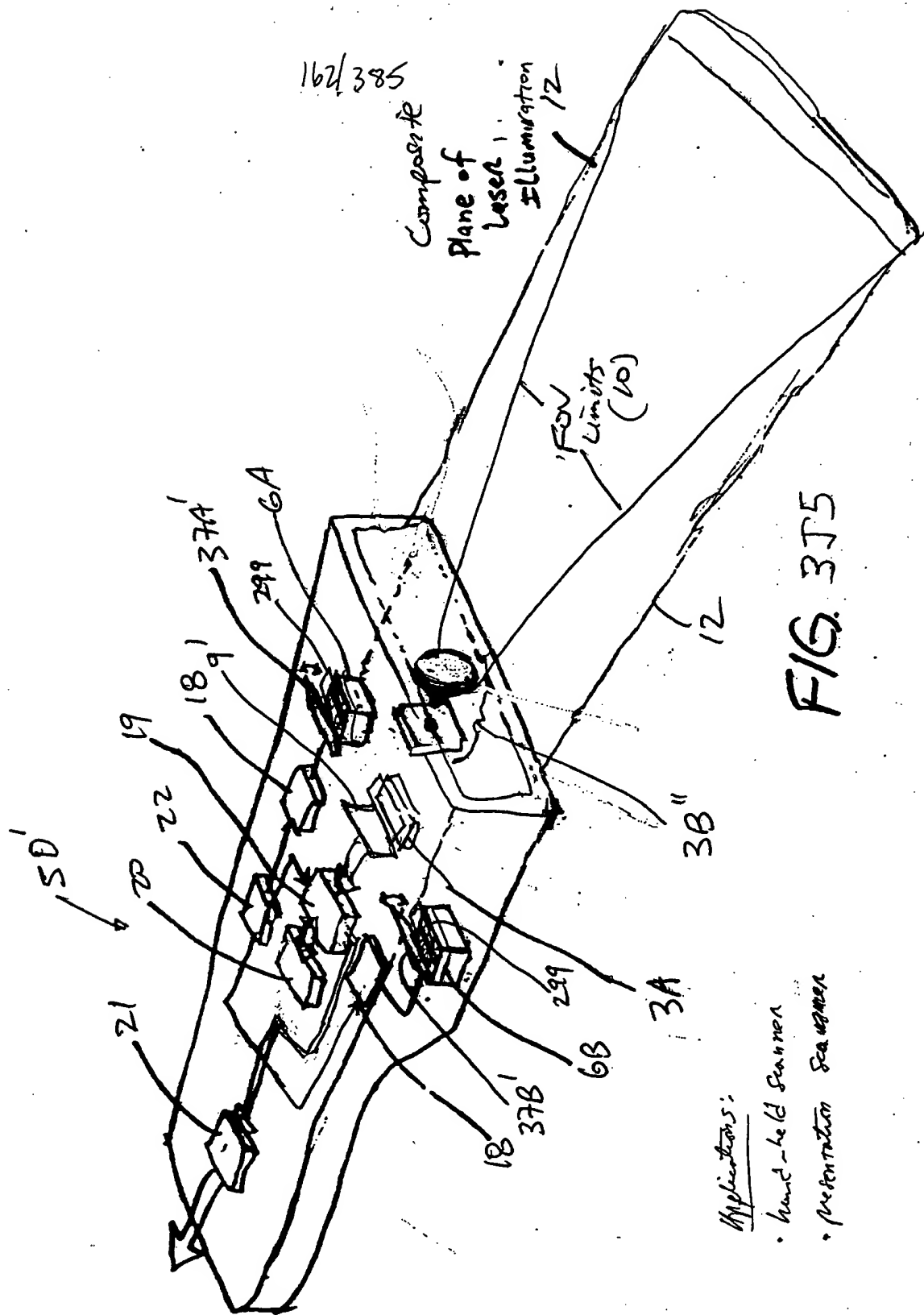


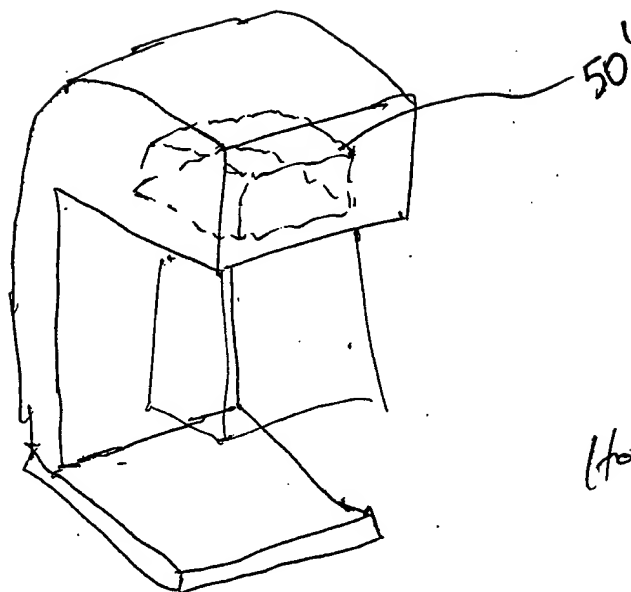
FIG. 3T5

Applications:

- hand-held scanner
- presentation scanner

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09090909 4404
1021 550550



2-D
Hold-up der
Scanner

FIG-3J6

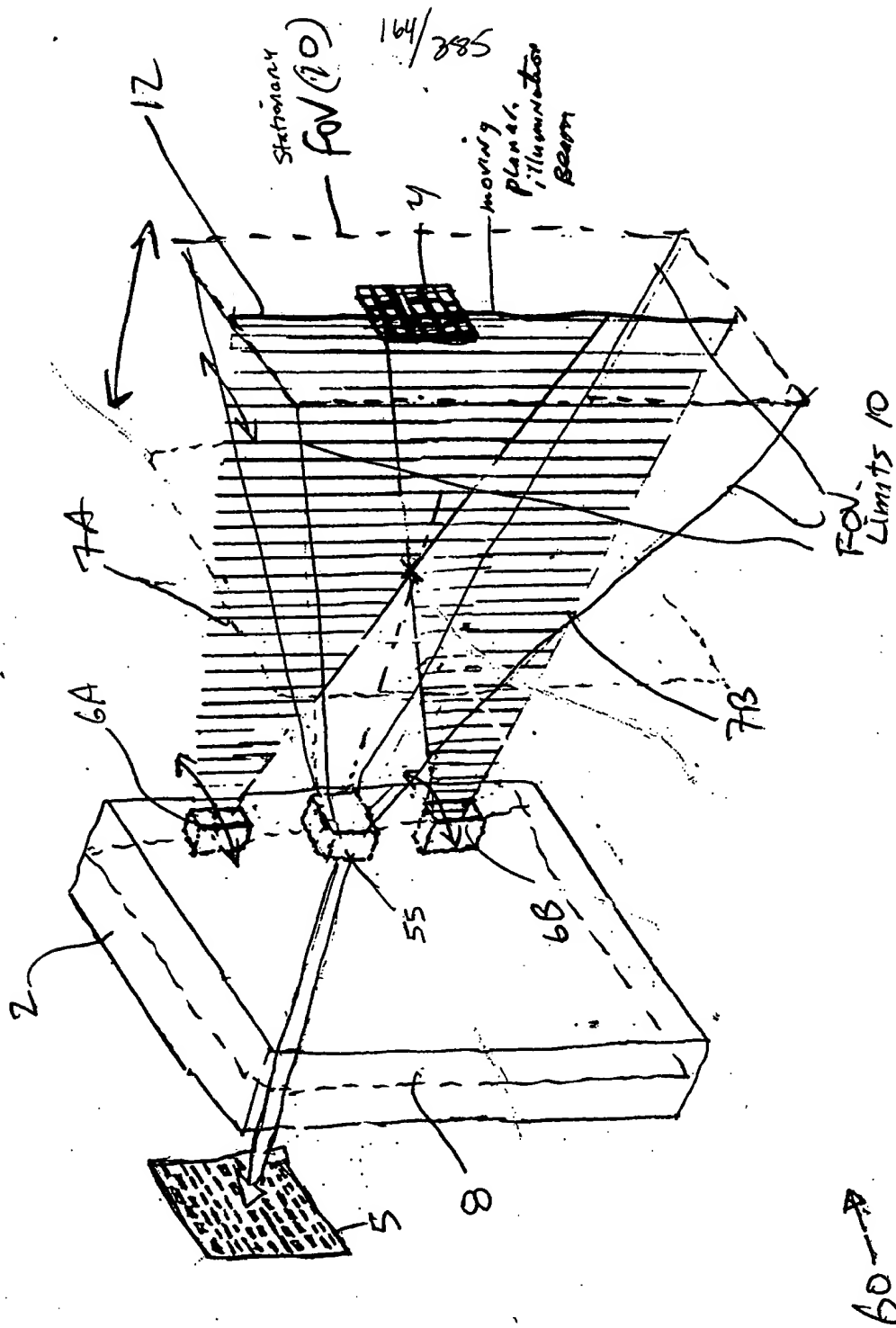
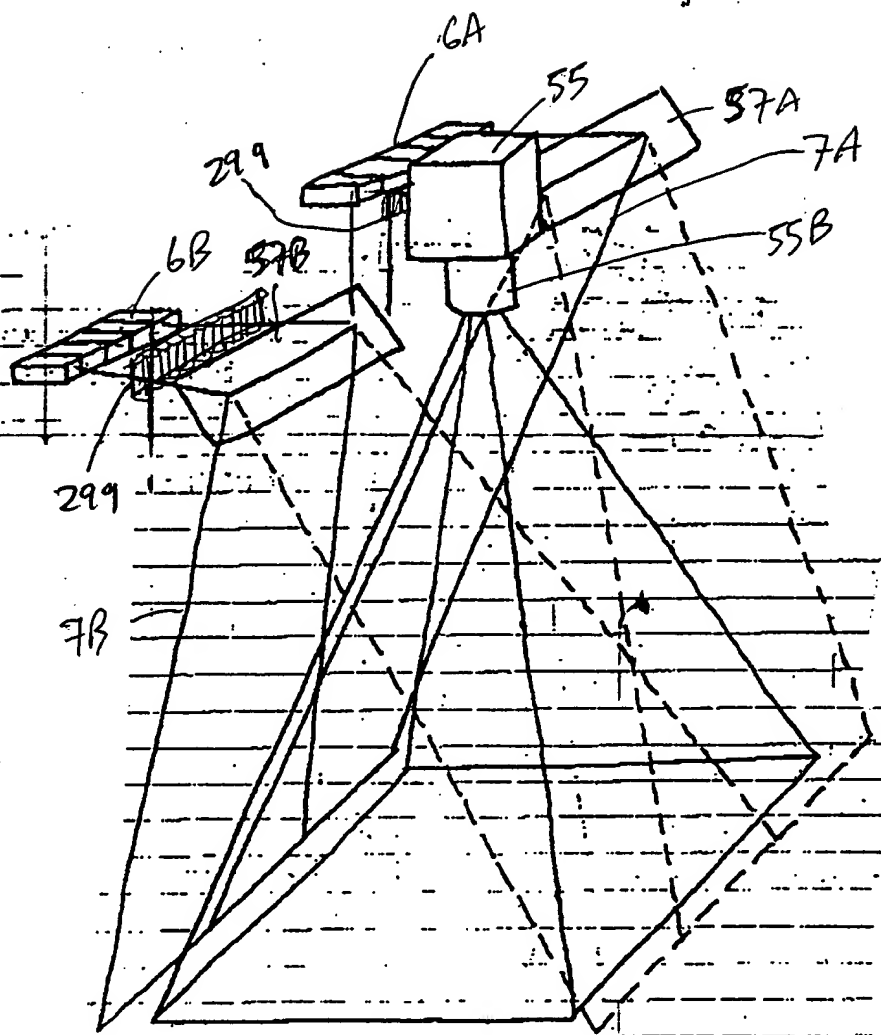


FIG 4A

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60A

FIG. 4B1

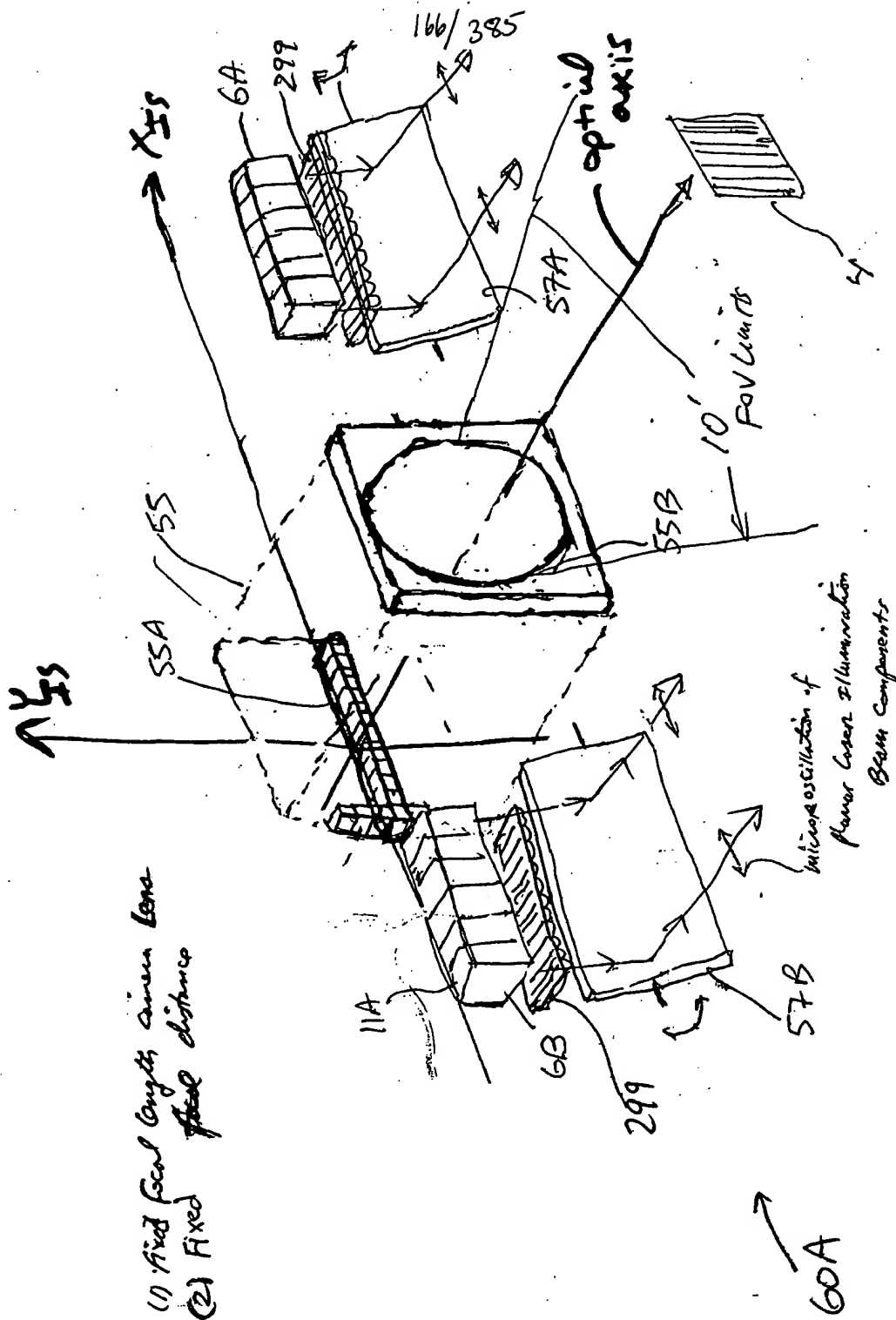
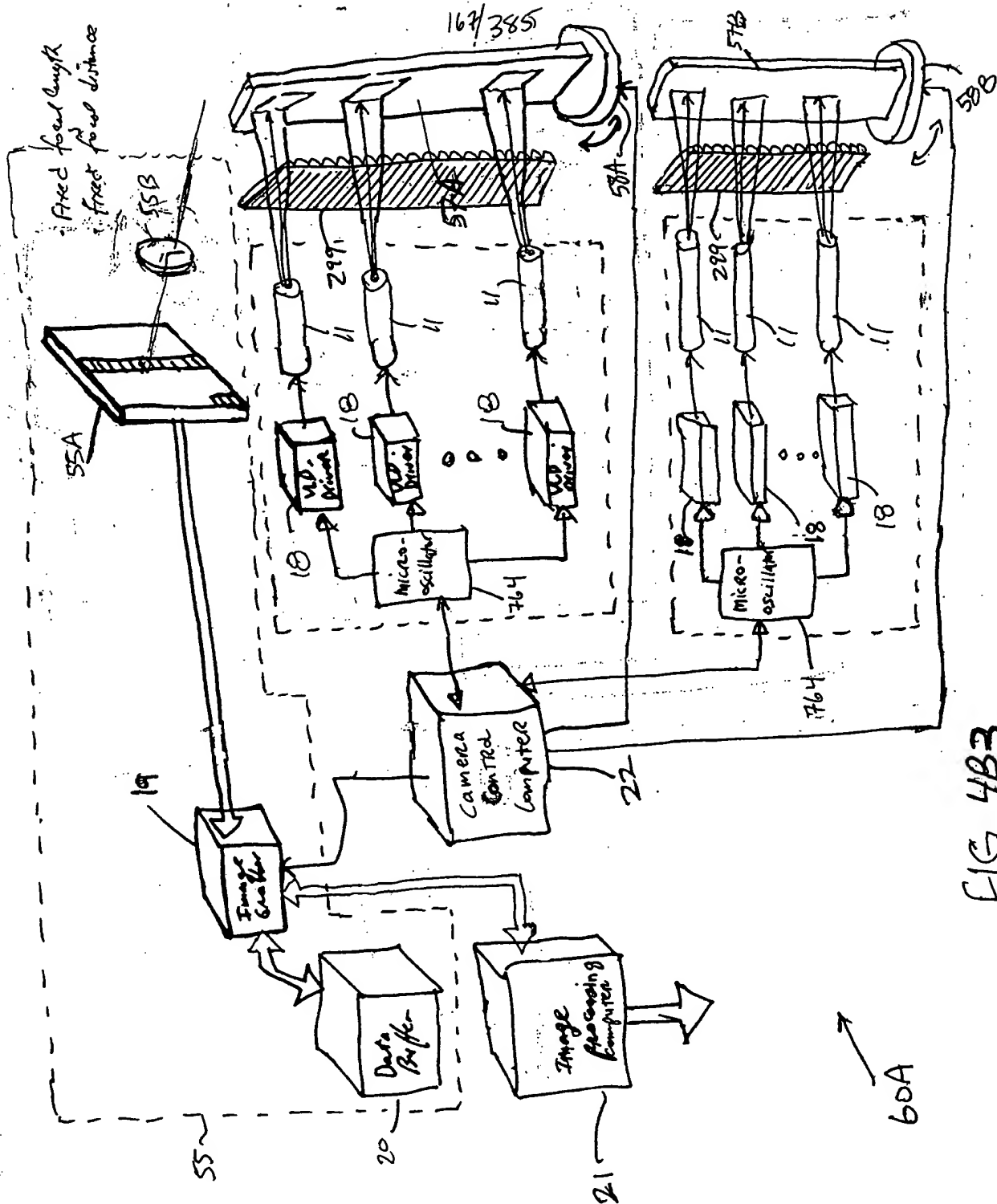


FIG. 4B.Z

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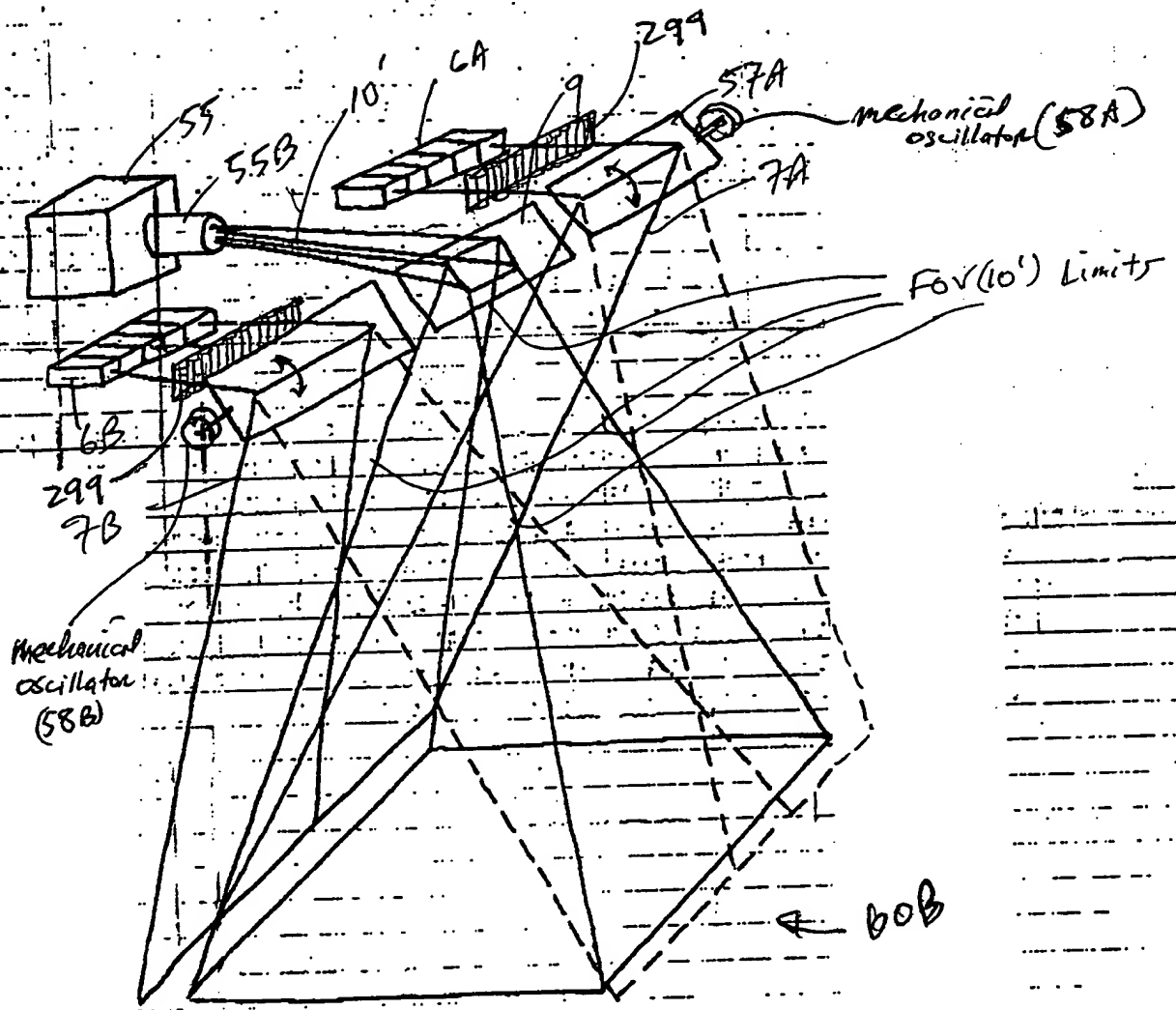


FIG. 4C1

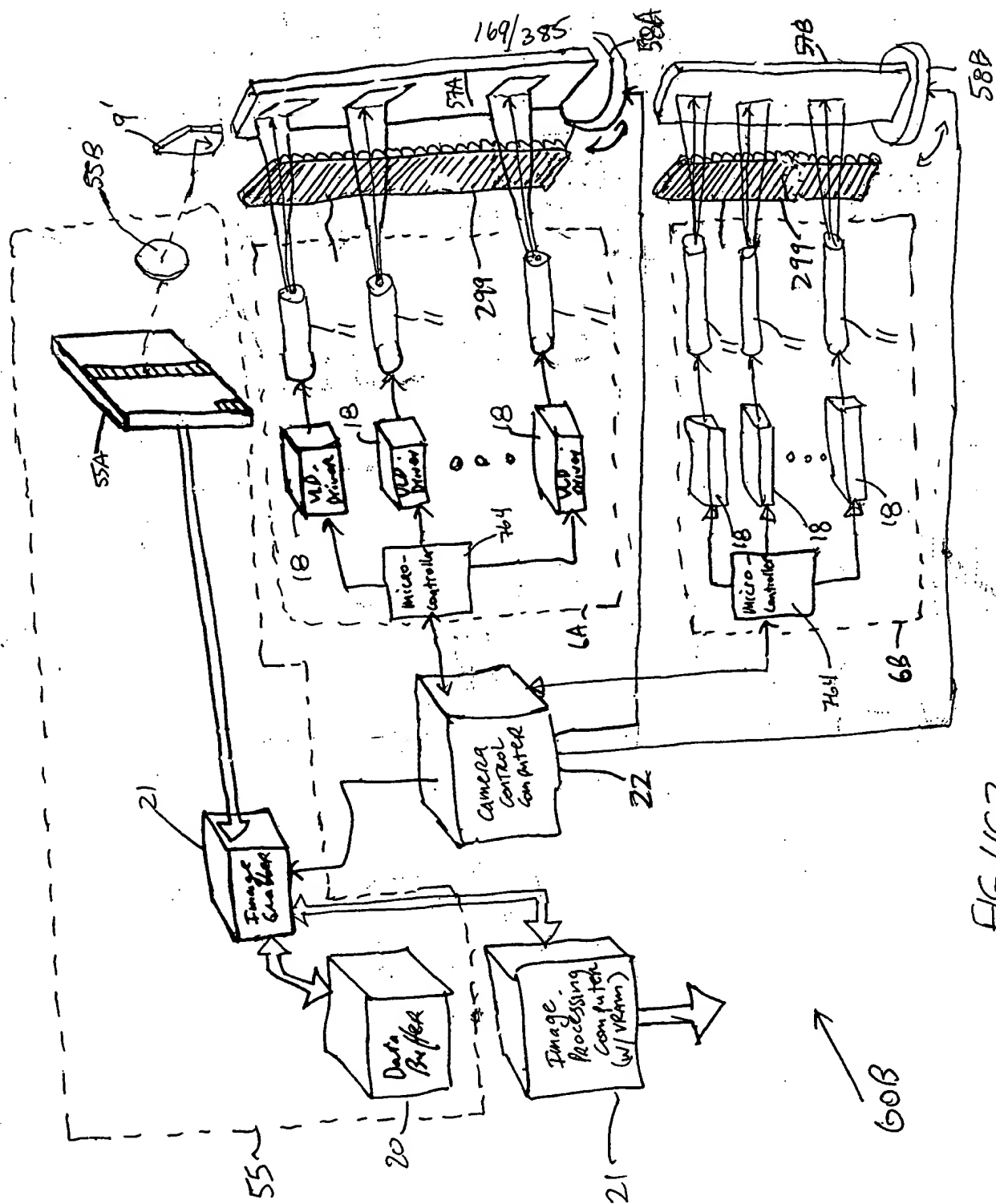
[illegible]

FIG. 4C2

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TOP SECRET

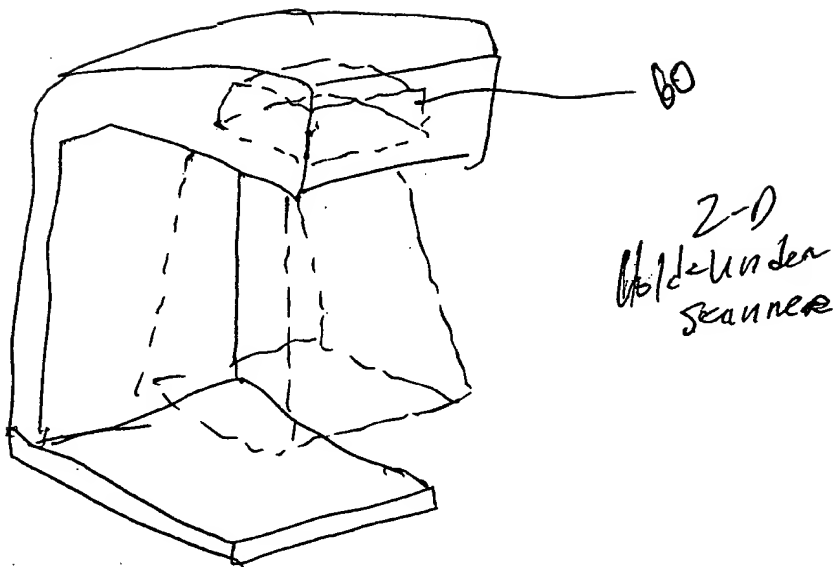
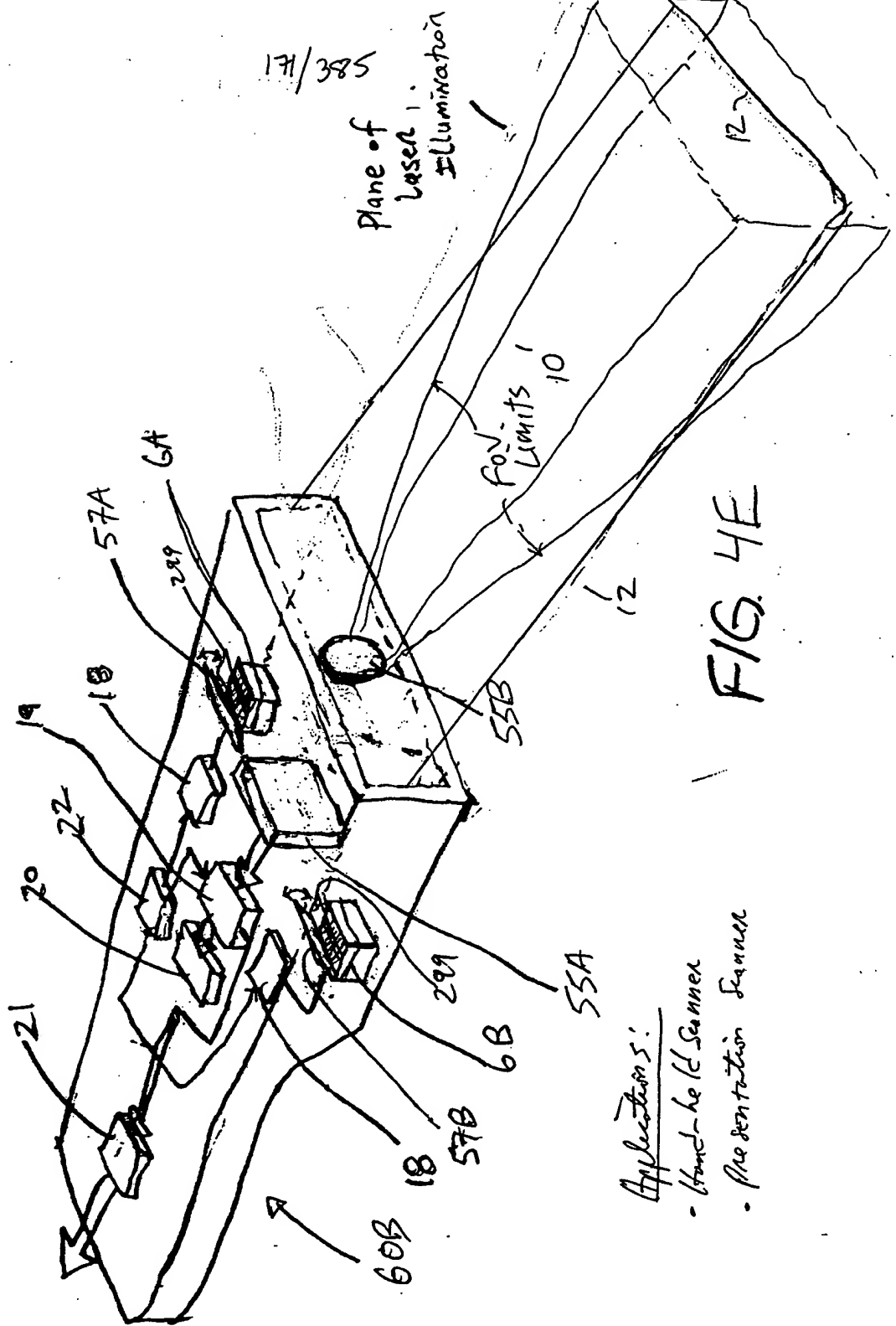
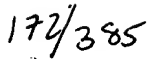


FIG. 4D

000000000000000000

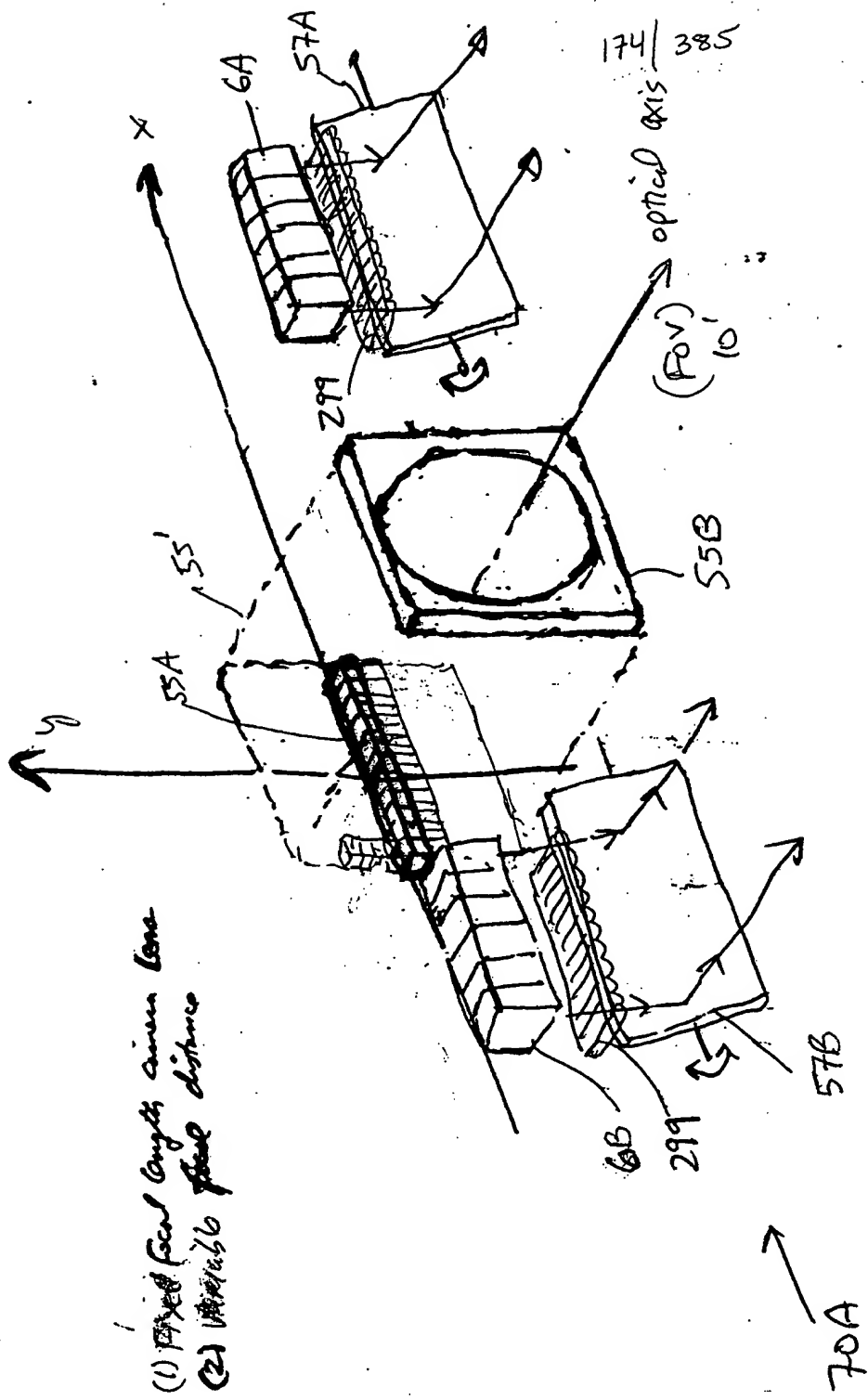


- Applications:
- Hand-held Scanner
 - Presentation Scanner



AG 5A

of



- (1) ~~Fixed~~ focal length camera lens
- (2) ~~Variable~~ focal distance

FIG. 5B1

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Fig. 5B3

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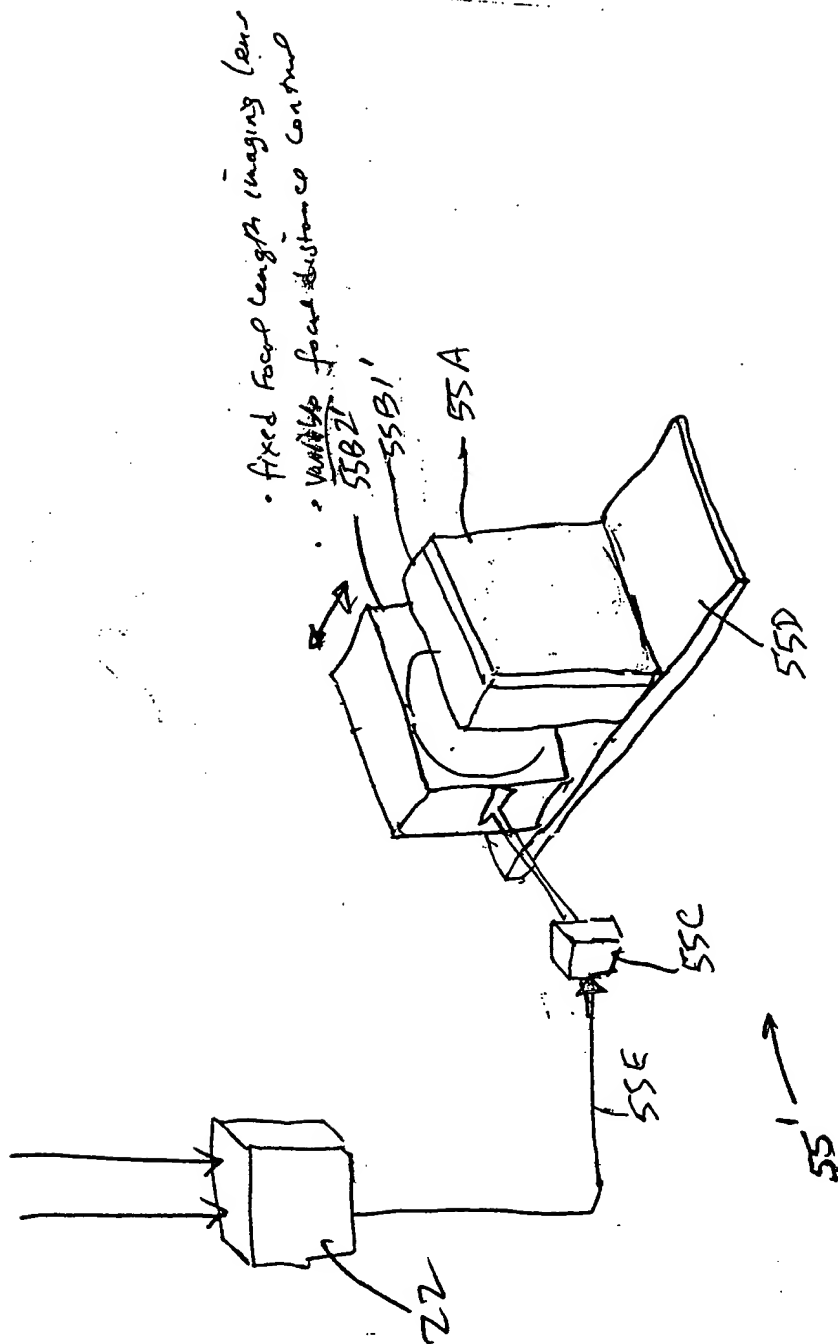
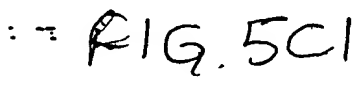
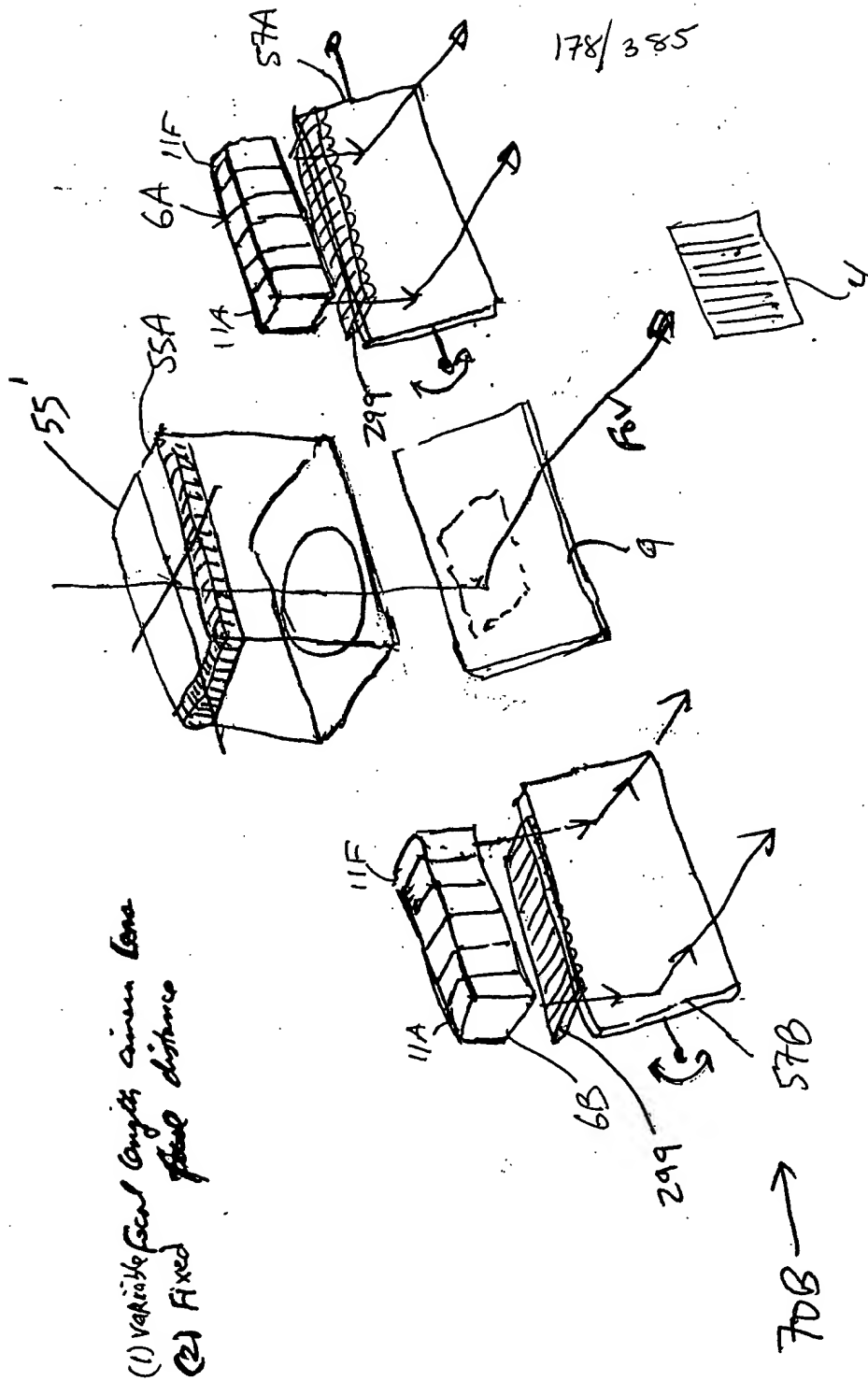


FIG. 5B4

[illegible]



- (1) Variable focal length, sinuous lens
- (2) Fixed focal distance

FIG. 50

[illegible]

708

7

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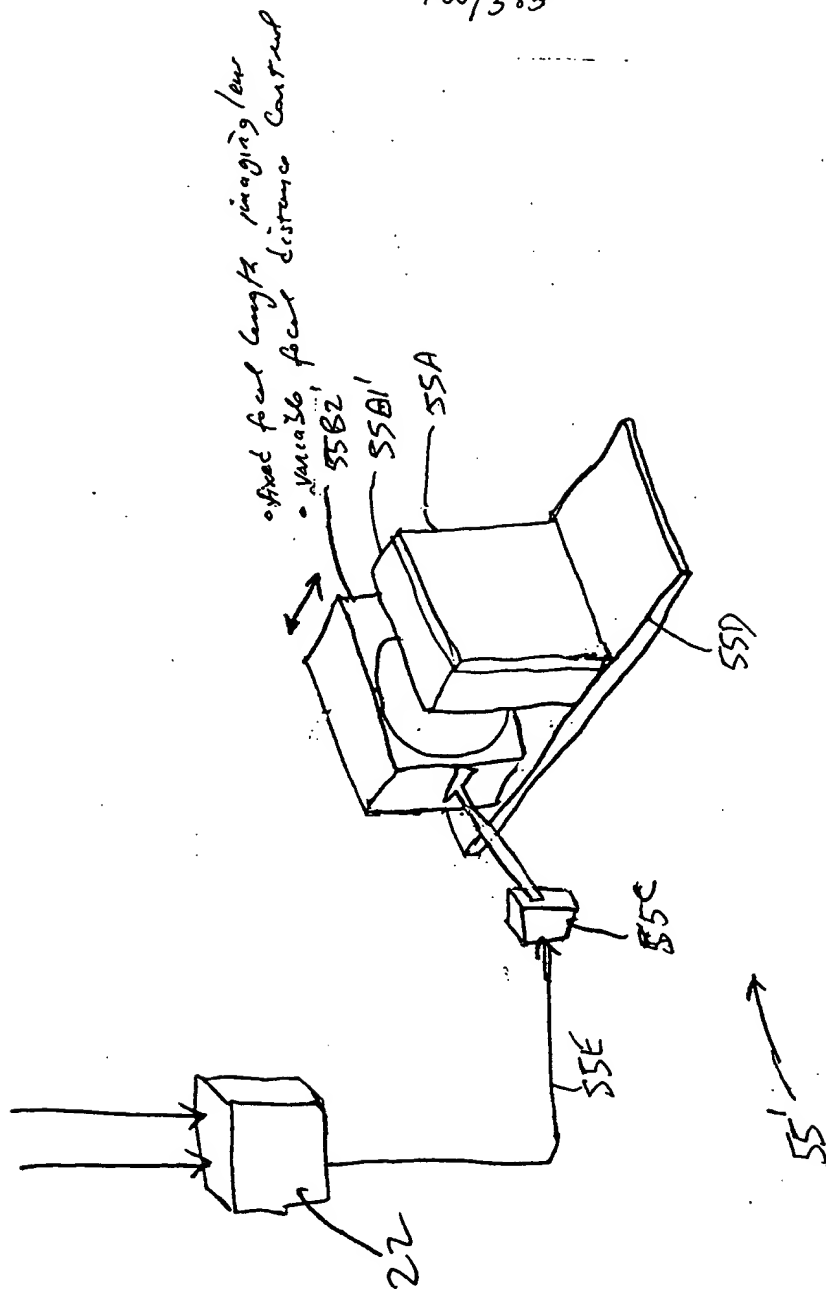


FIG. 5C4

[illegible]

FOOT 2050550

OC

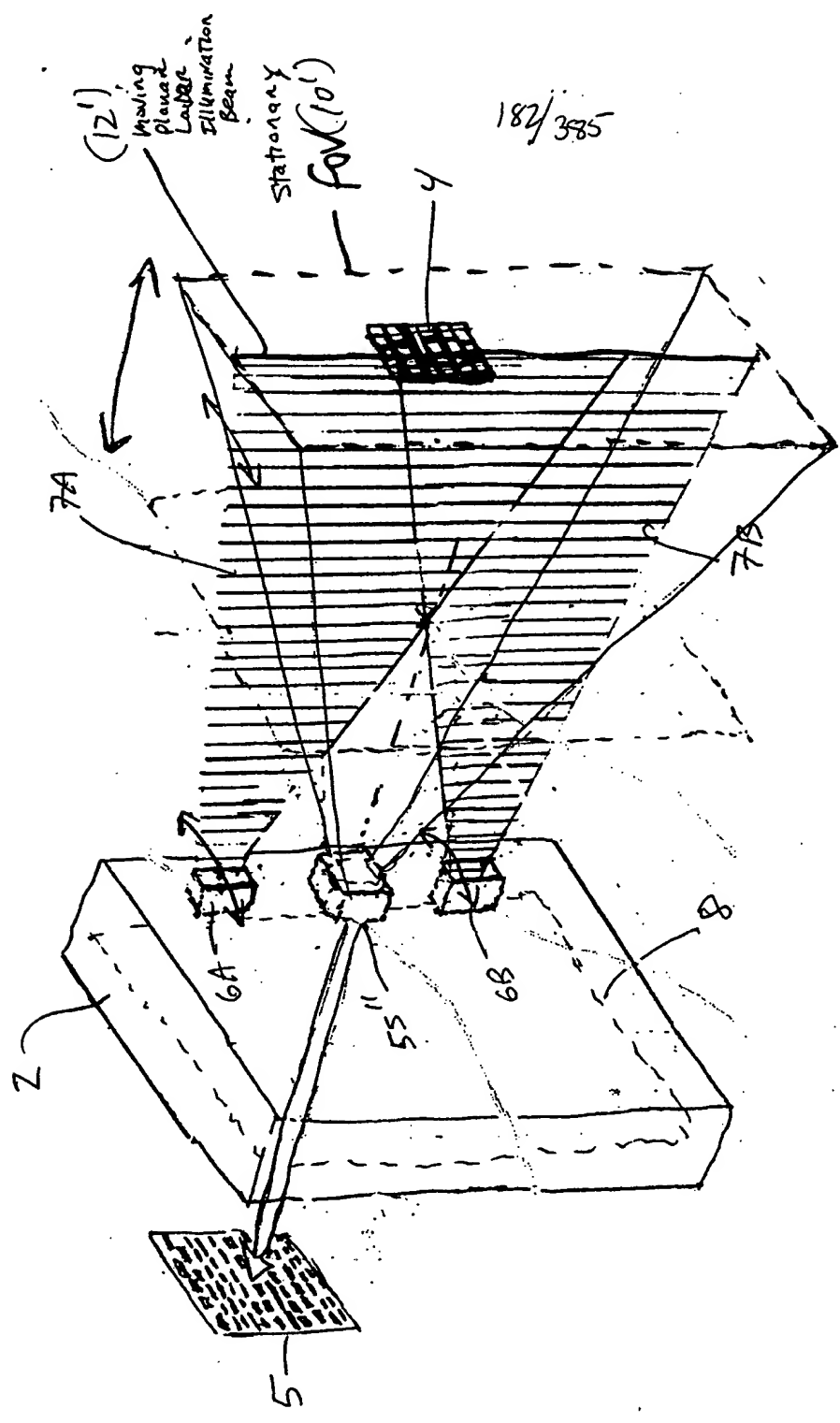


FIG. 6A

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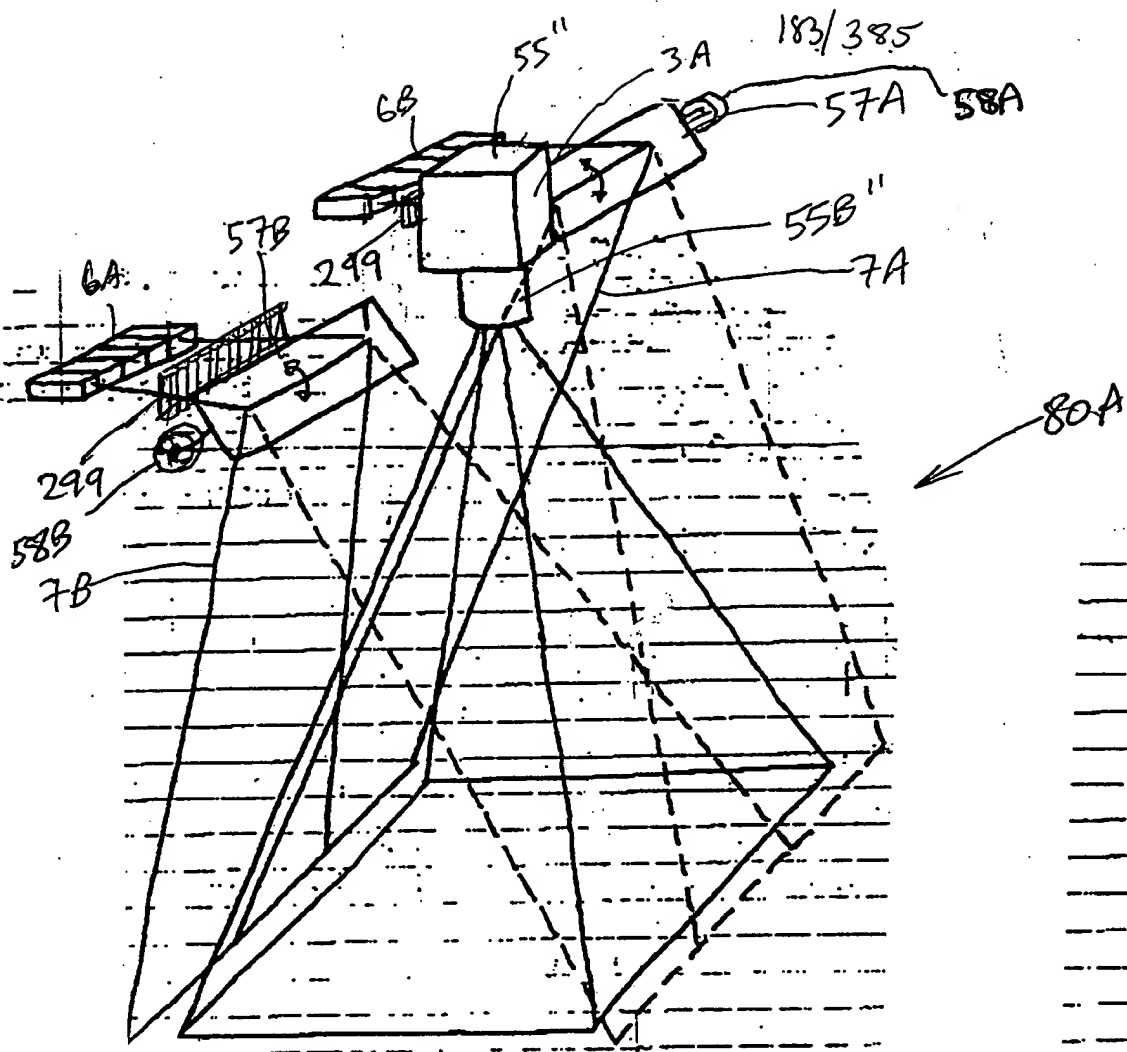


FIG. 6B1

- (1) variable focal length camera lens
- (2) variable focal distance

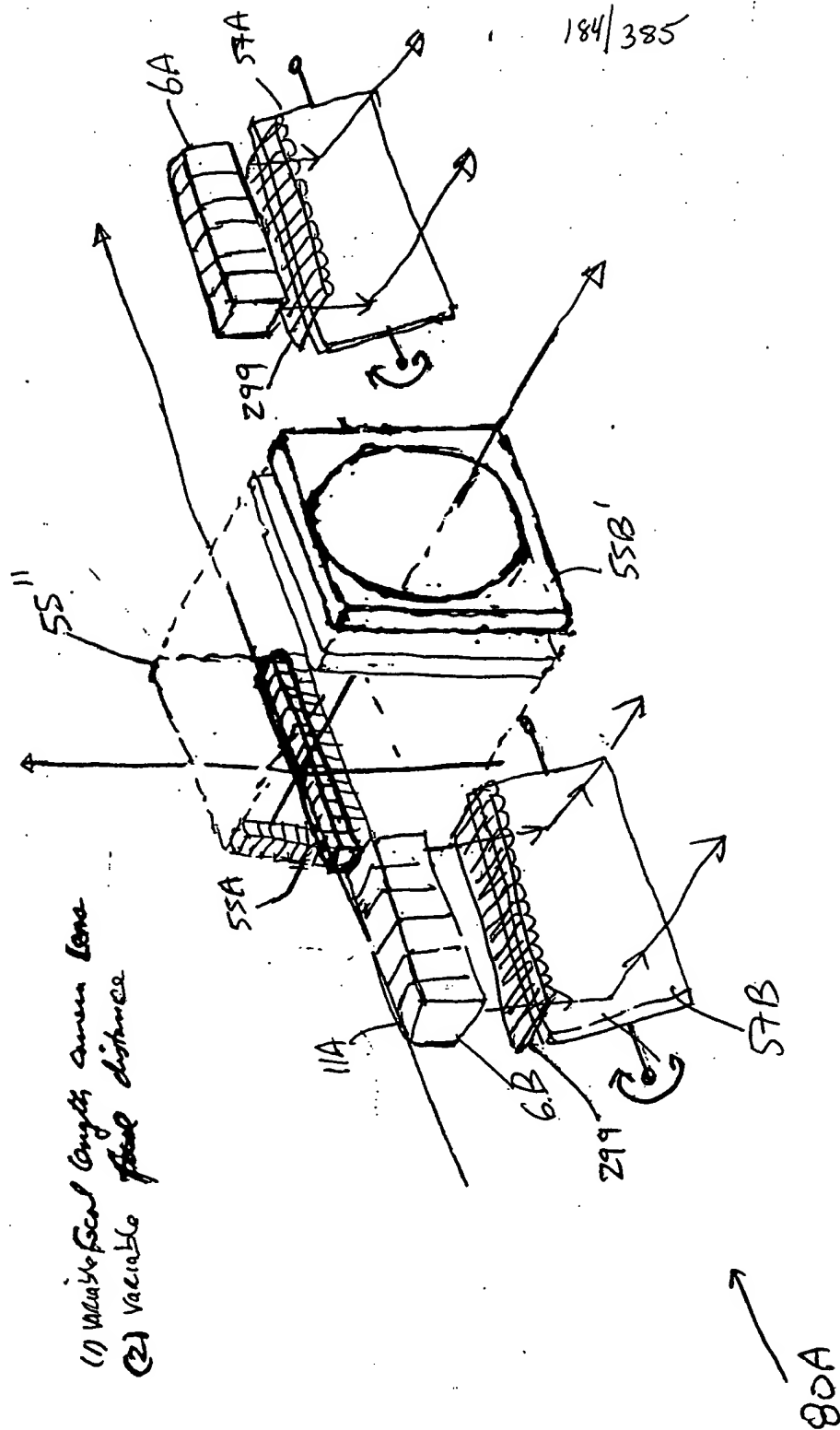


FIG. 6B2

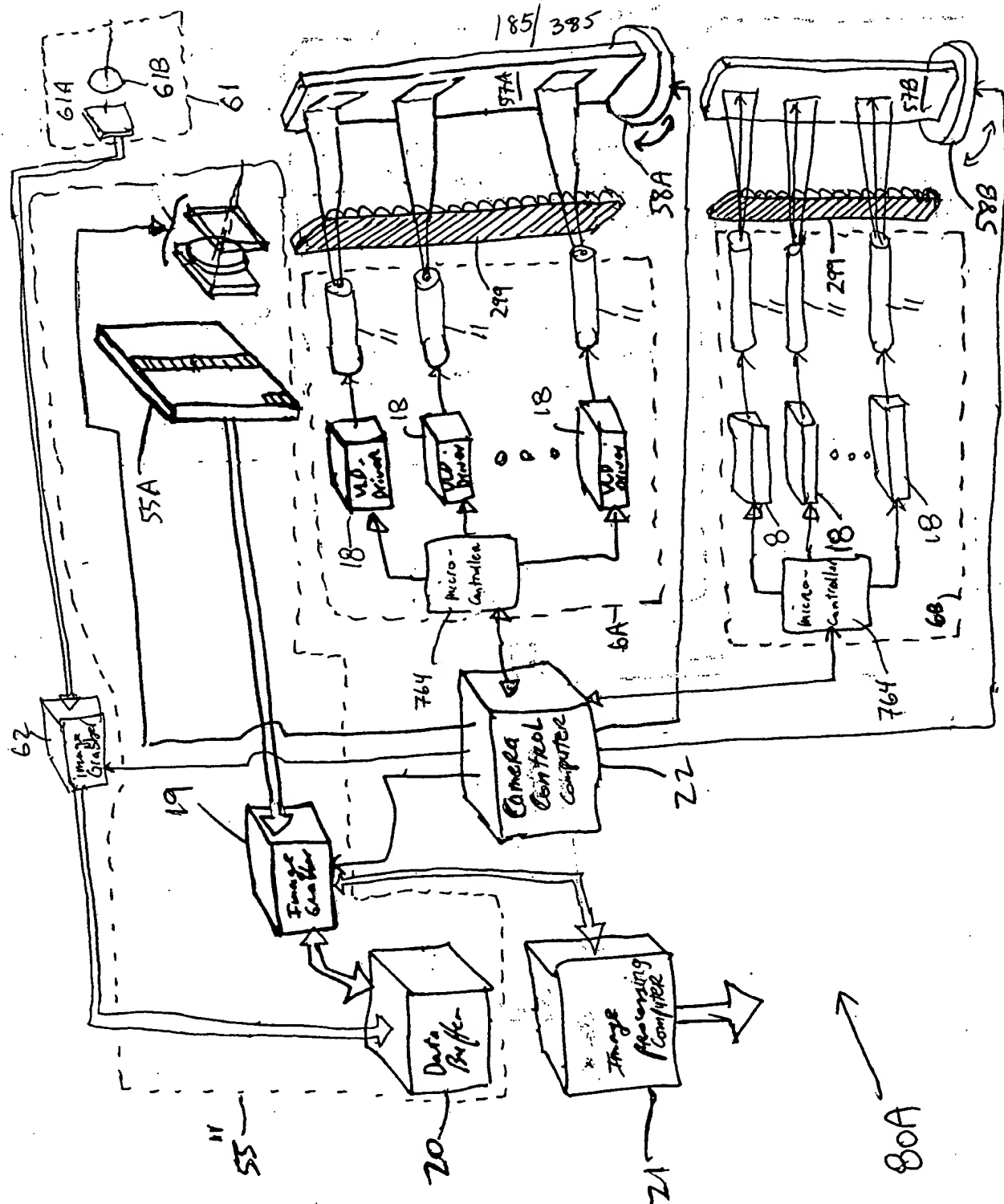


FIG. 6B3

TOP SECRET

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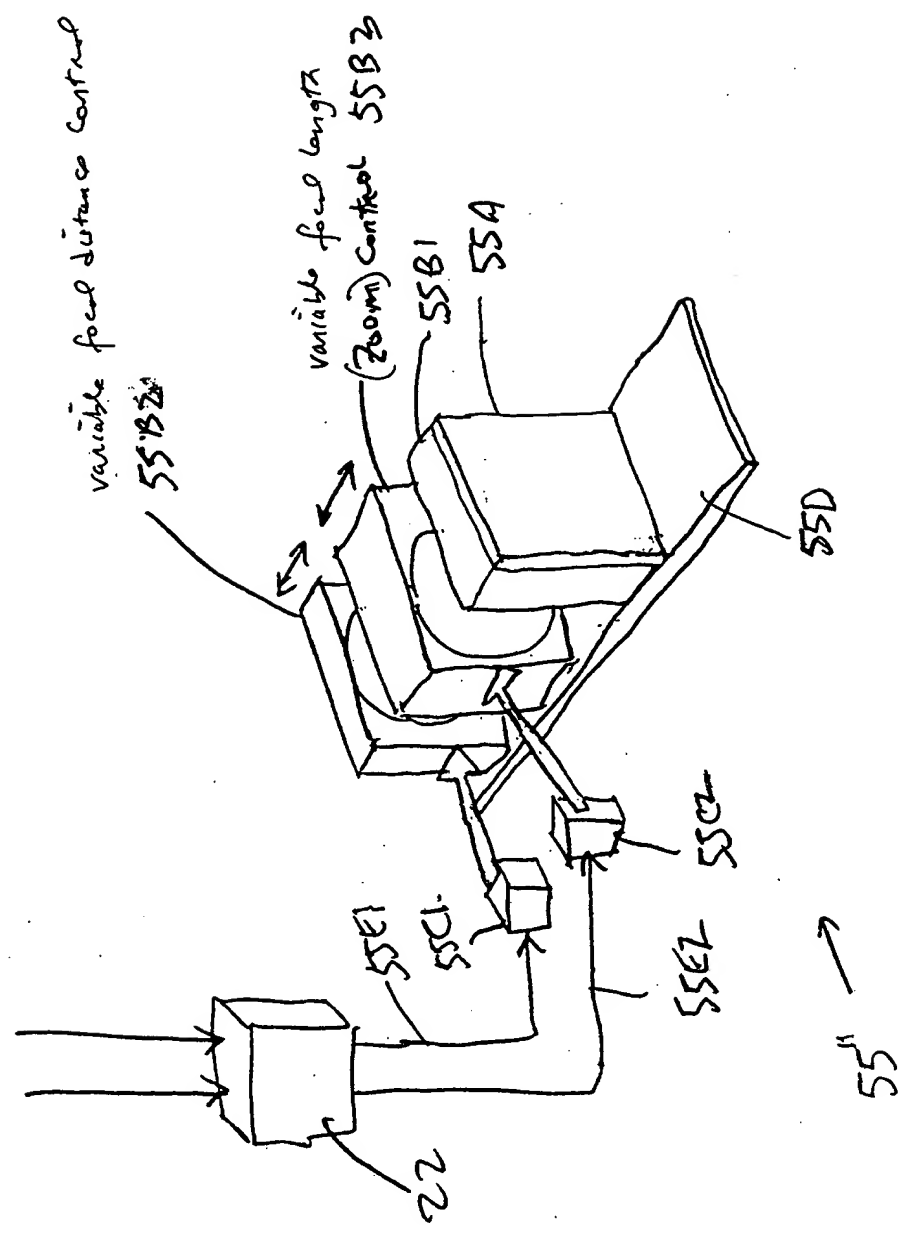


FIG. 6B4

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Diagram illustrating a perspective view of the optical system 12'. The system includes a light source 55, a lens 55B, a prism 6A, and a prism 6B. The light path is shown passing through these components to the eyepiece 7B. The field of view (FOV) is indicated as 10 degrees, limited by the prism 6B. The diagram is labeled 187/385.

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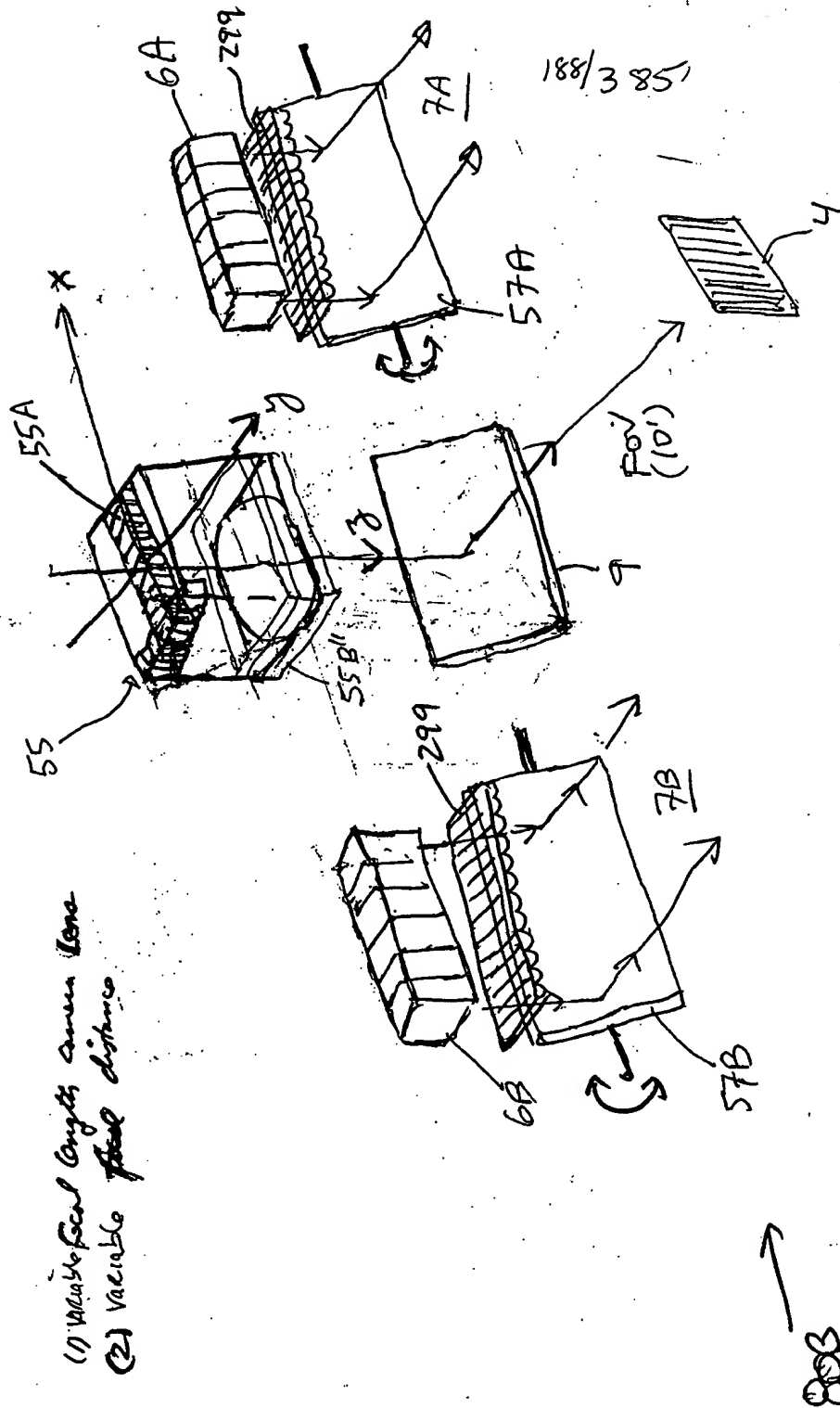


FIG. 6C2

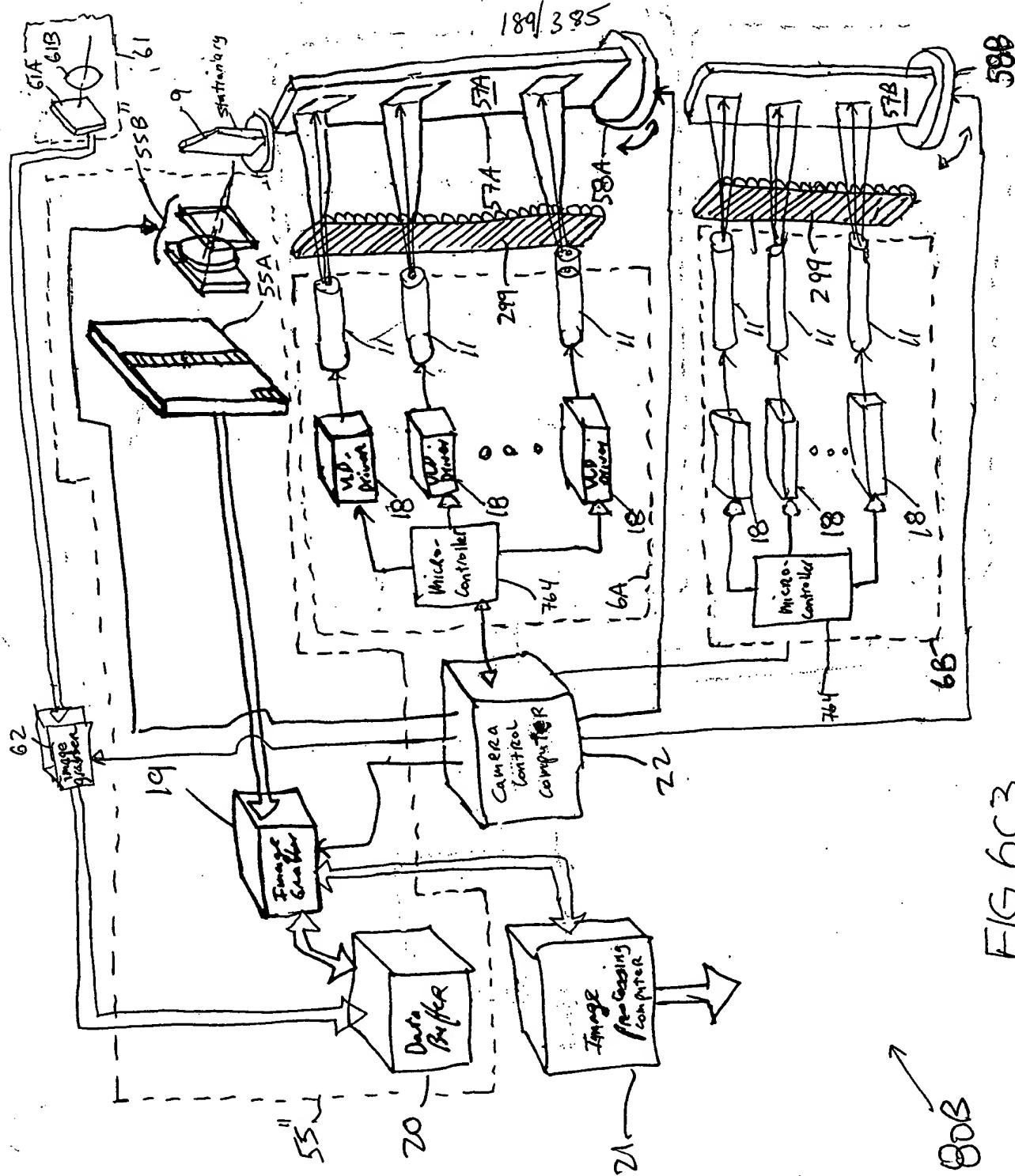


FIG. 6C3

Patented 5-23-66

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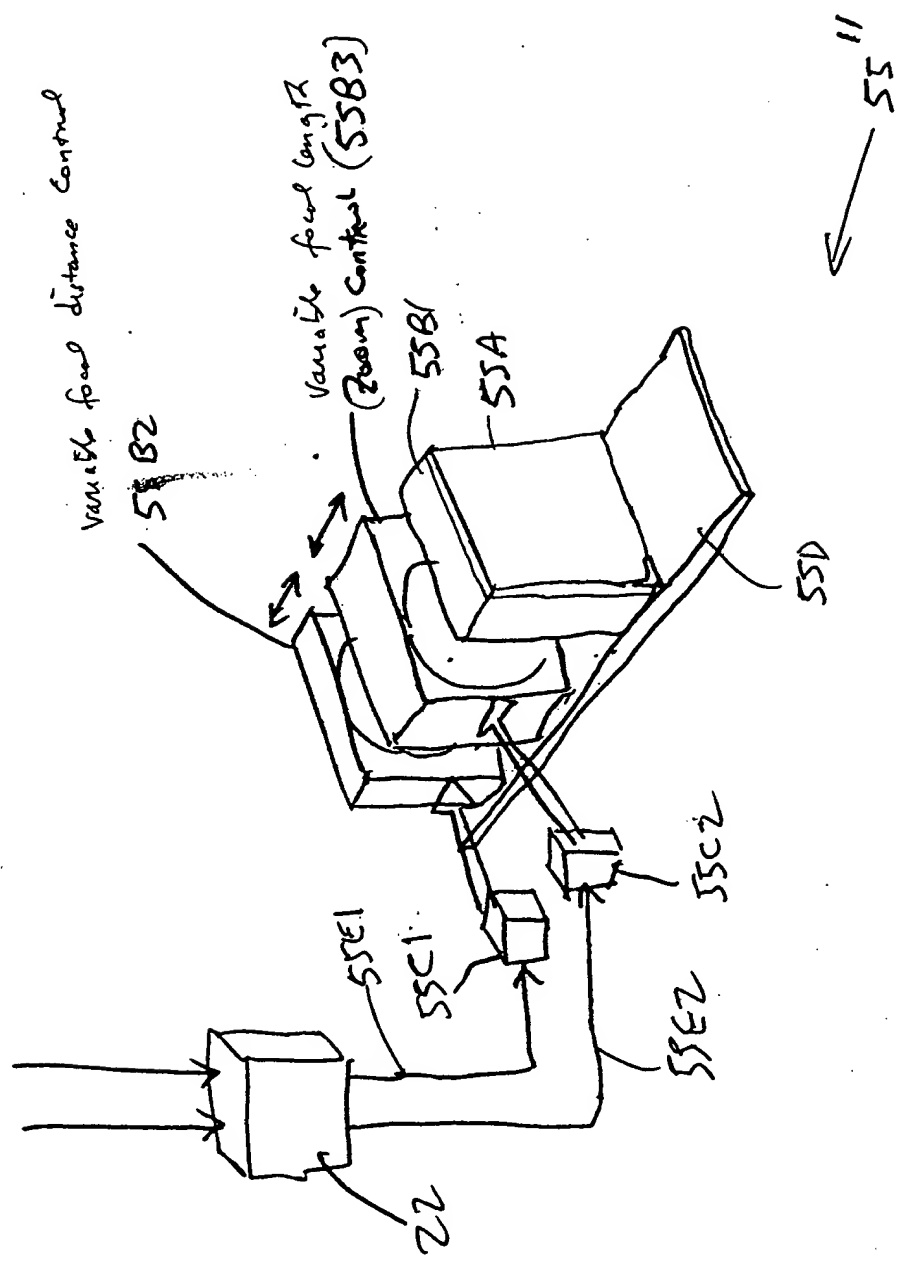


FIG. 6C4

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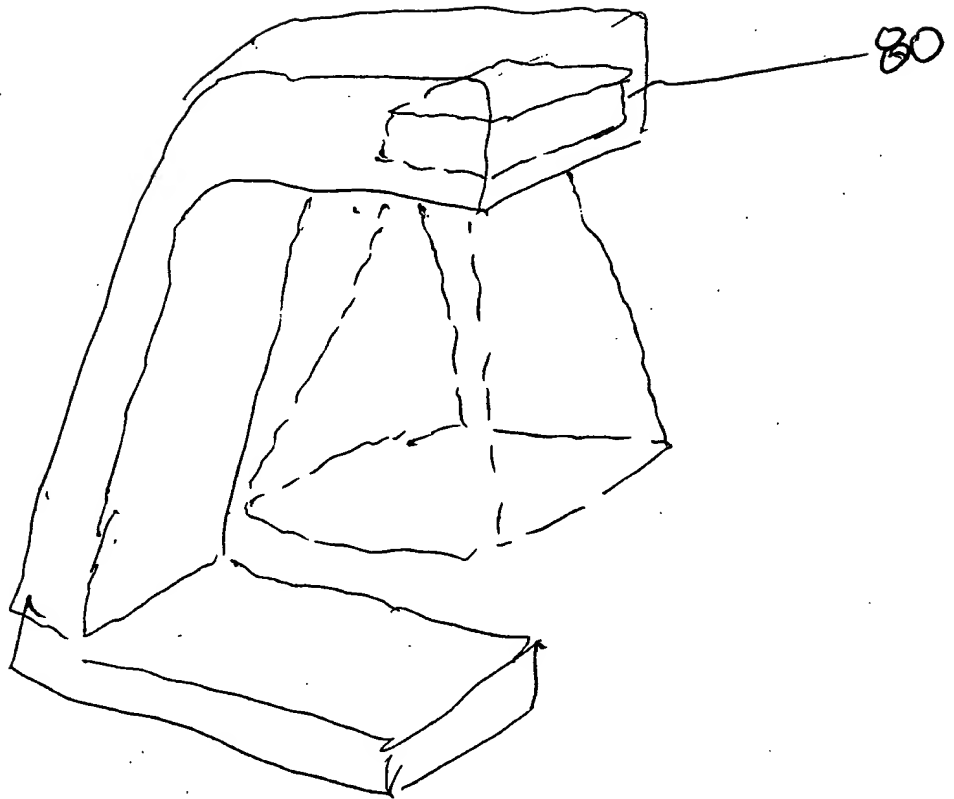


FIG. 6C5

09900586 44401

00000585 442404

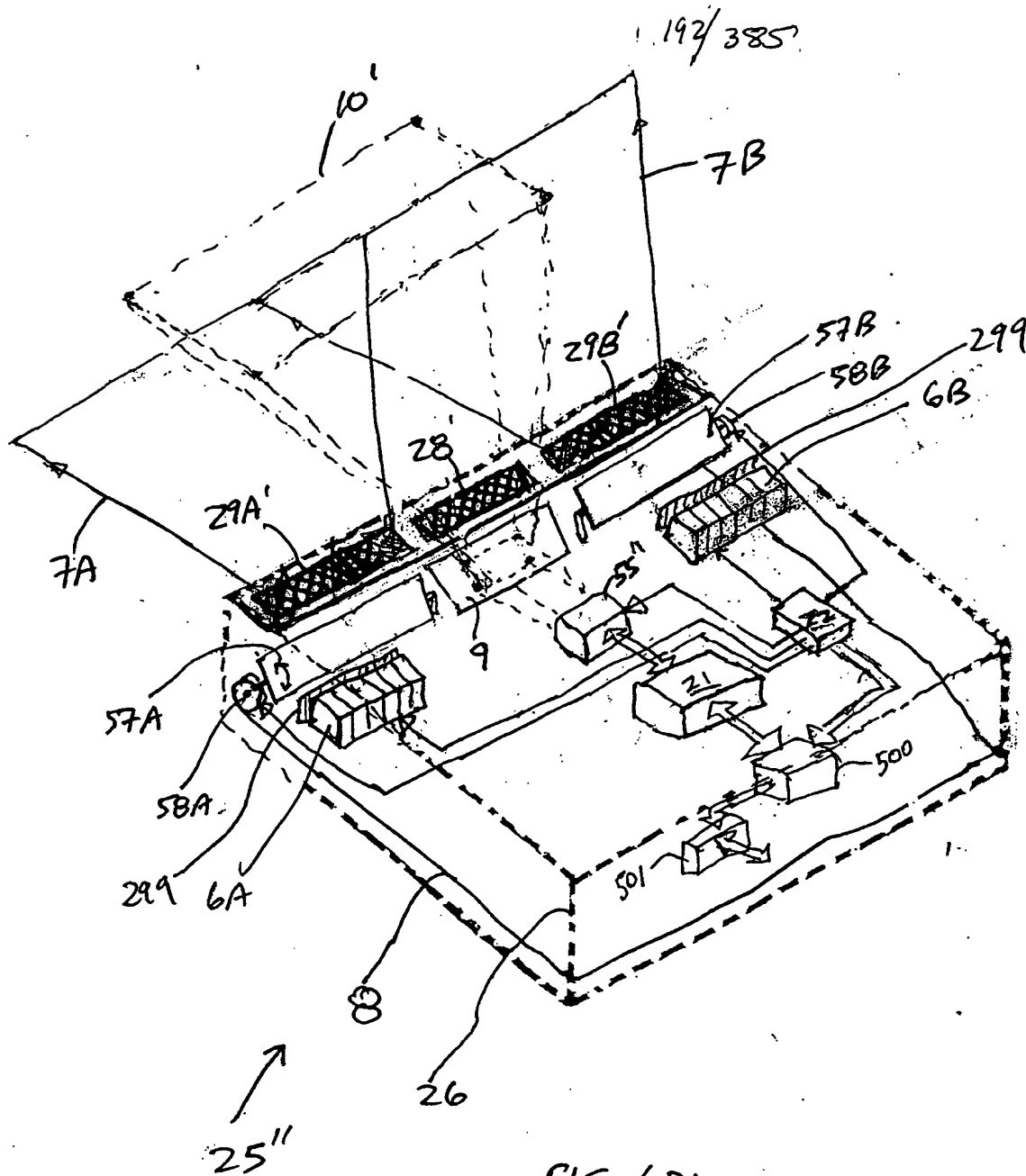


FIG. 6D1

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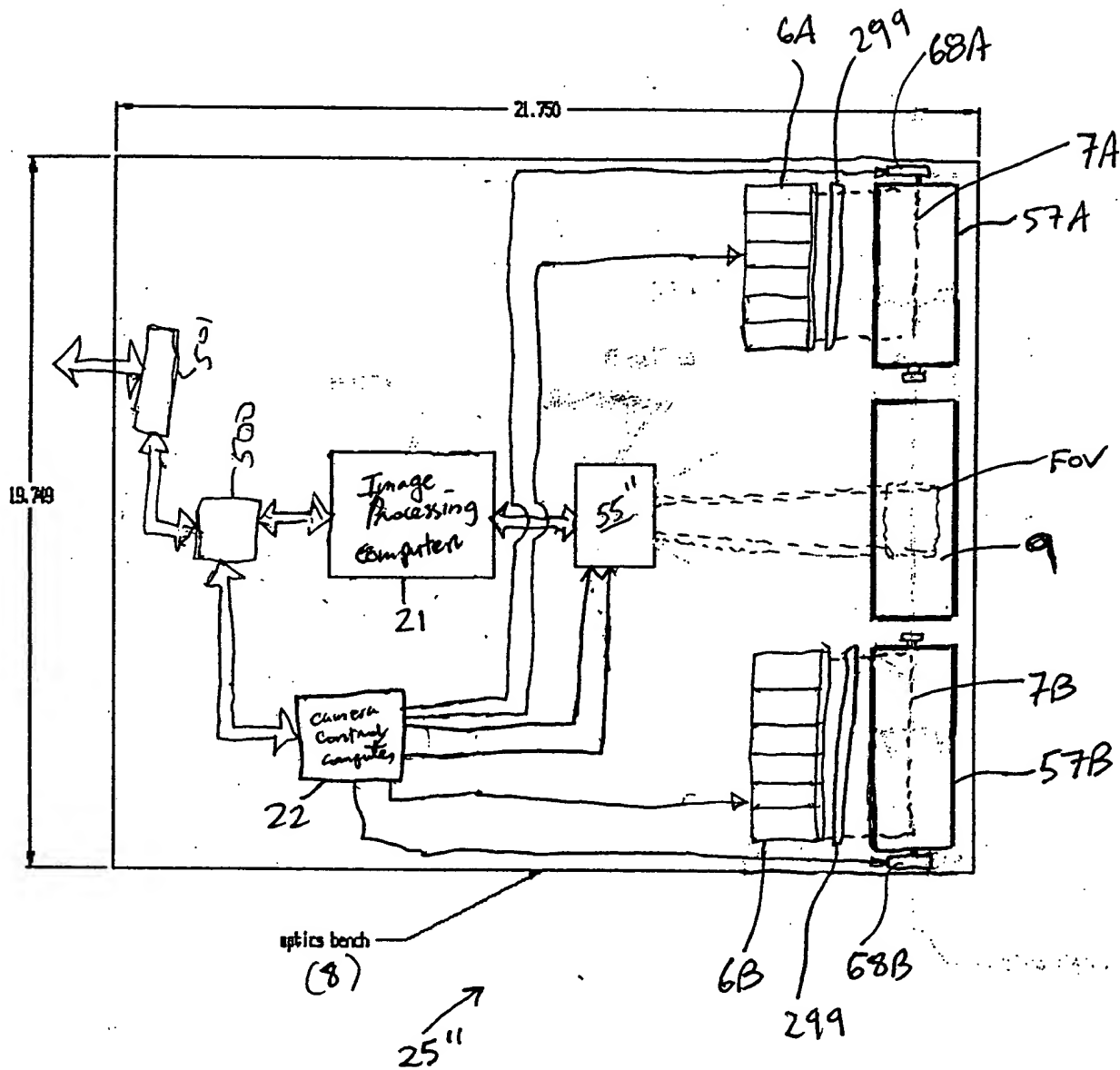
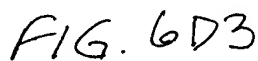


FIG. 6DZ

[illegible]

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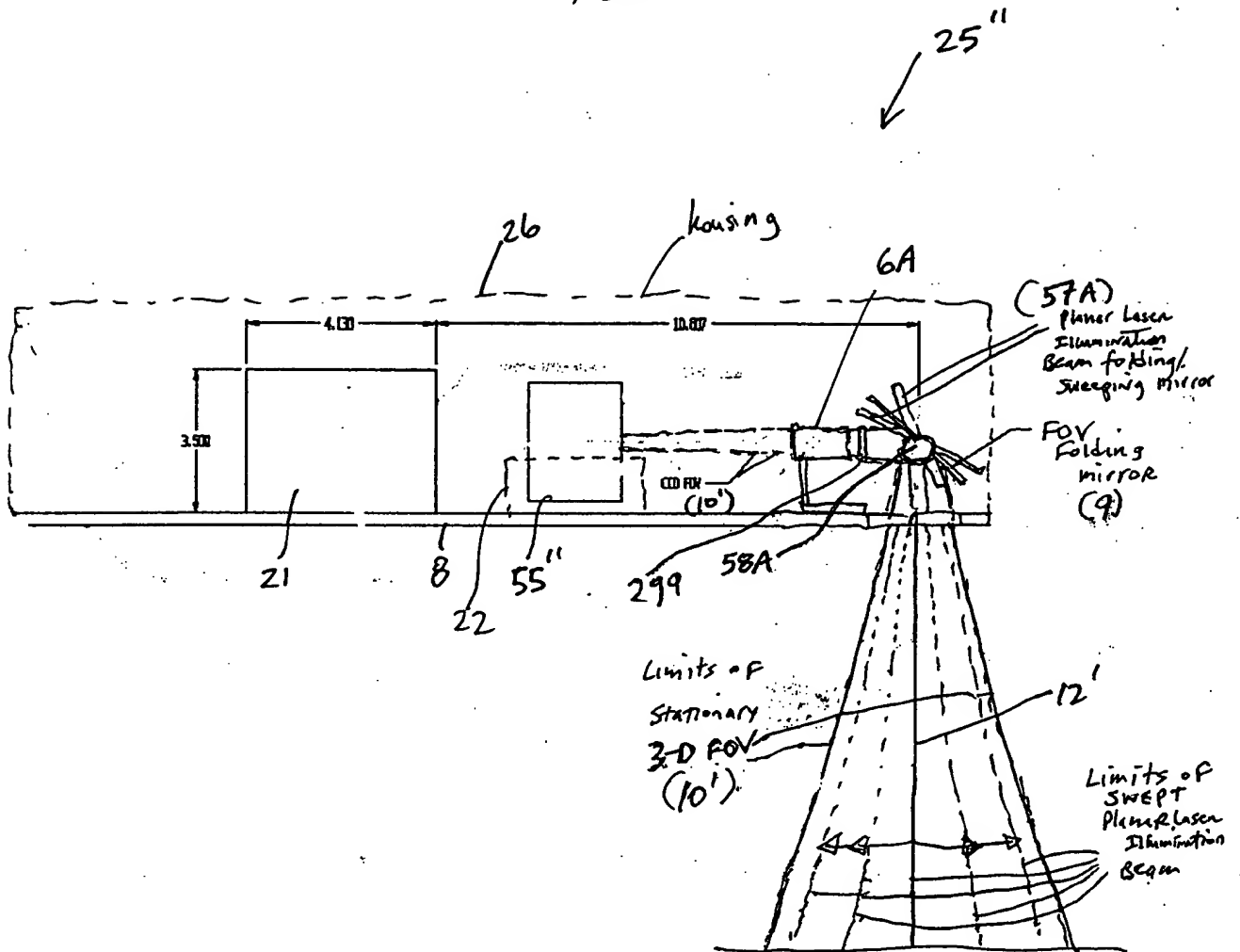


FIG. 6D4

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variable FOV

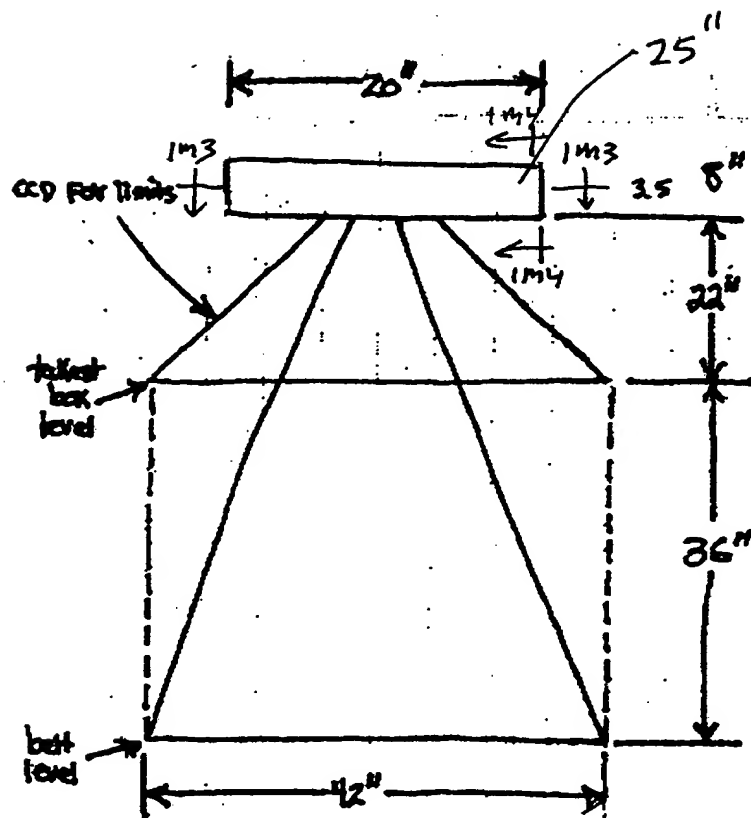


FIG. 6D5

FIG. 6E1

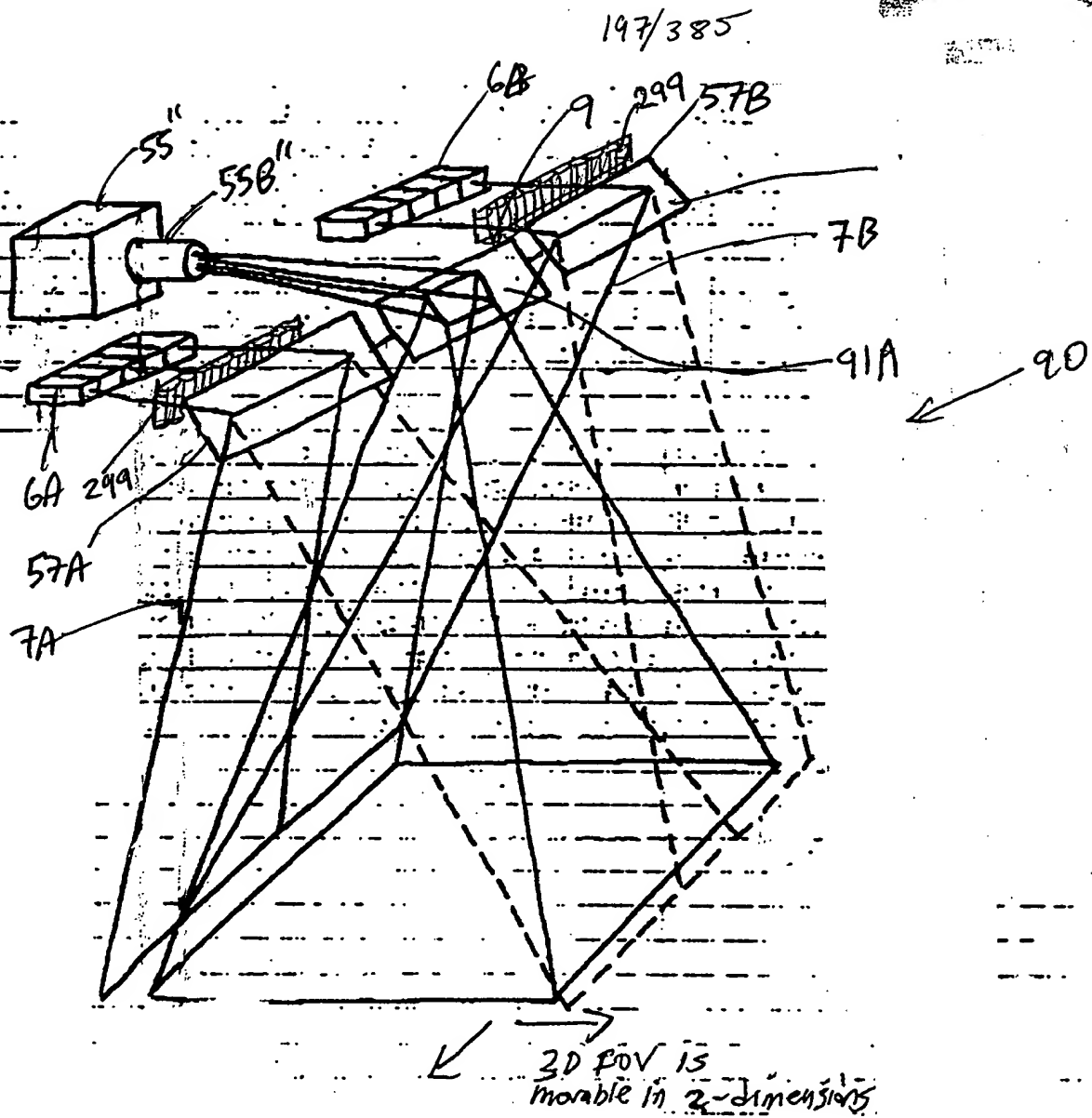


FIG. 6E1

- (1) Variable length annular zone
- (2) Variable fluid distance

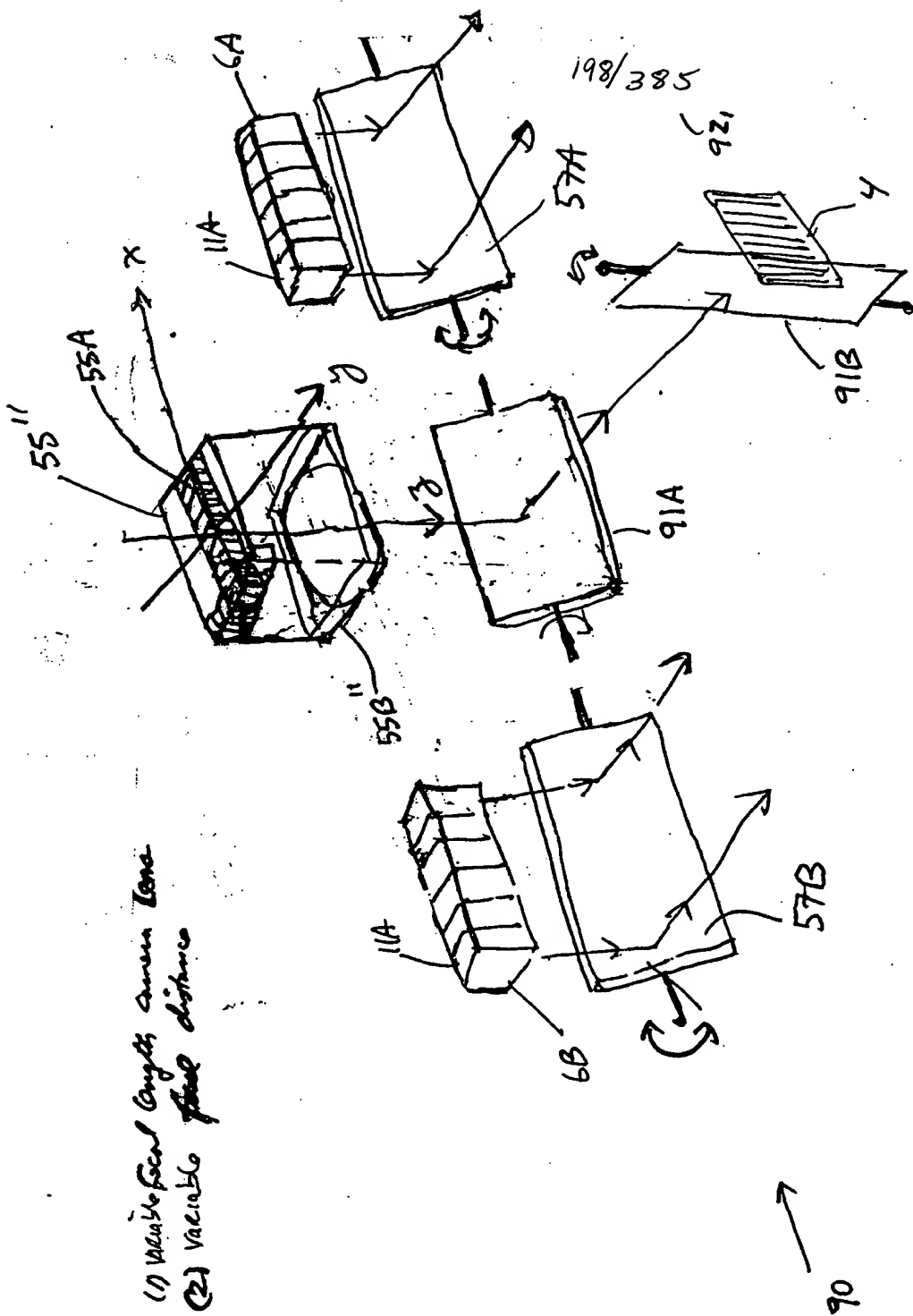


FIG. 6E2

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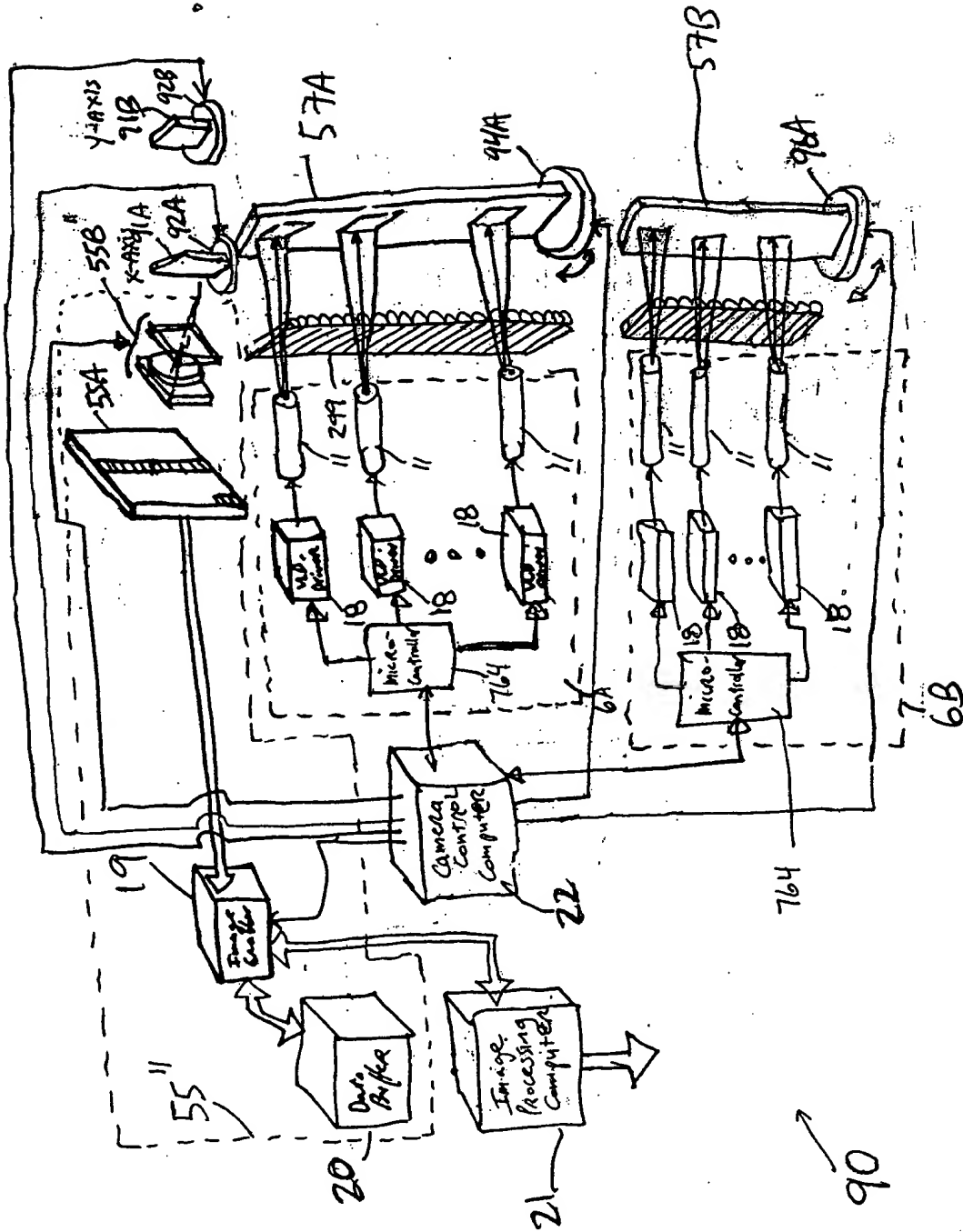


FIG. 6E3

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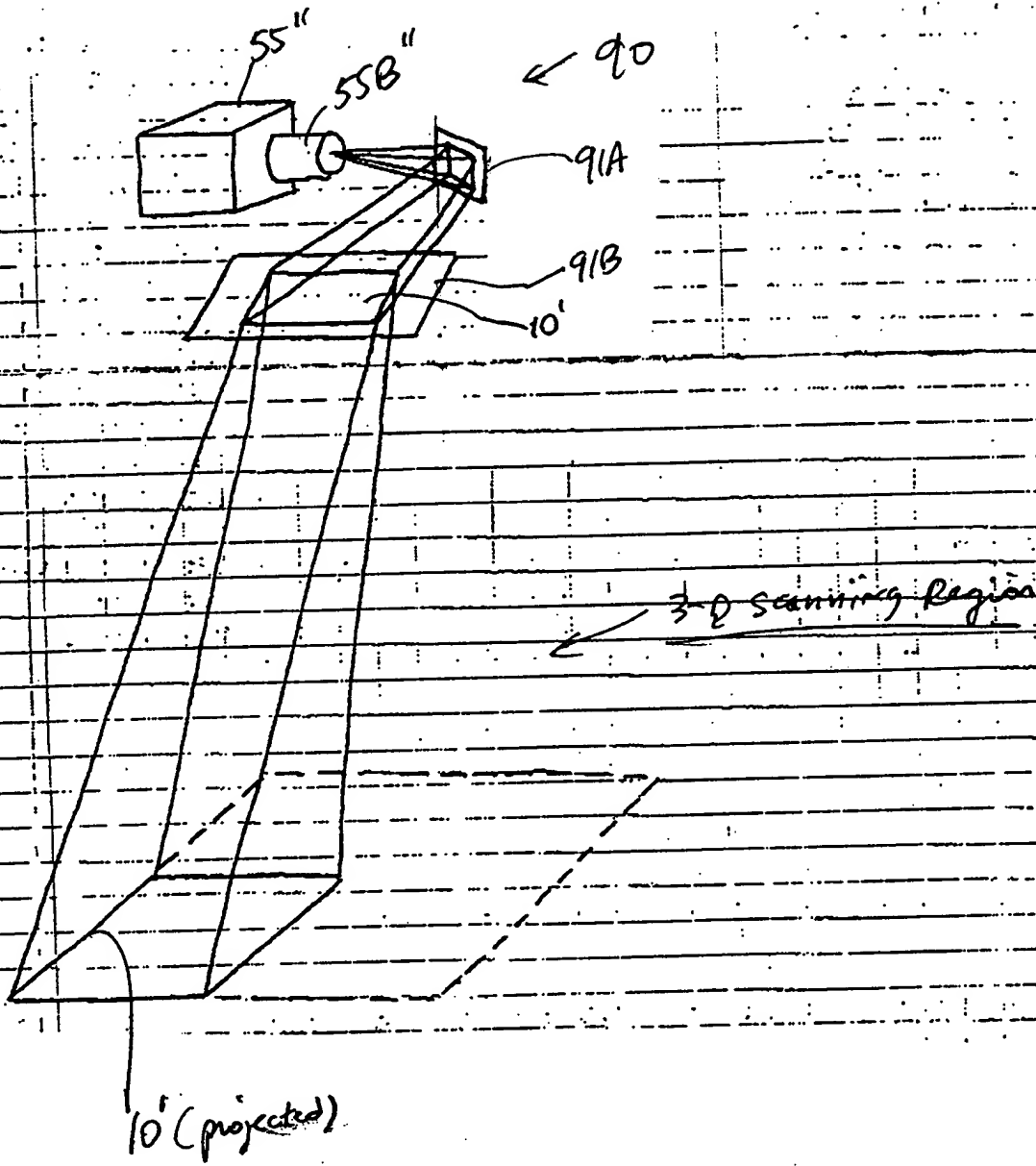
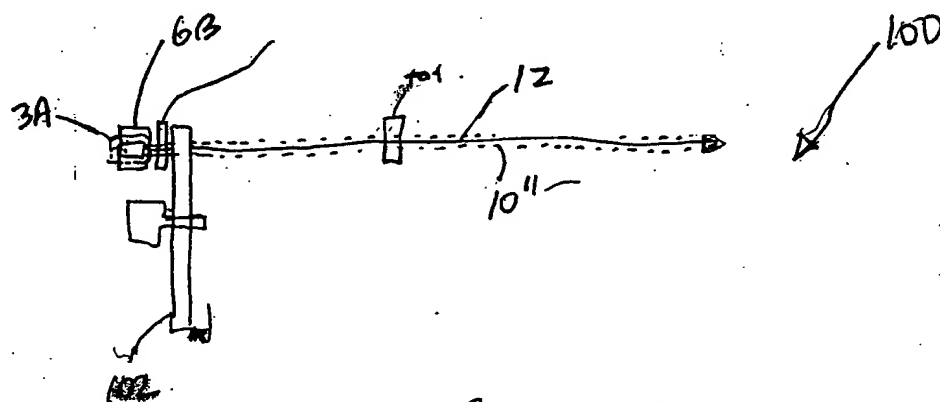
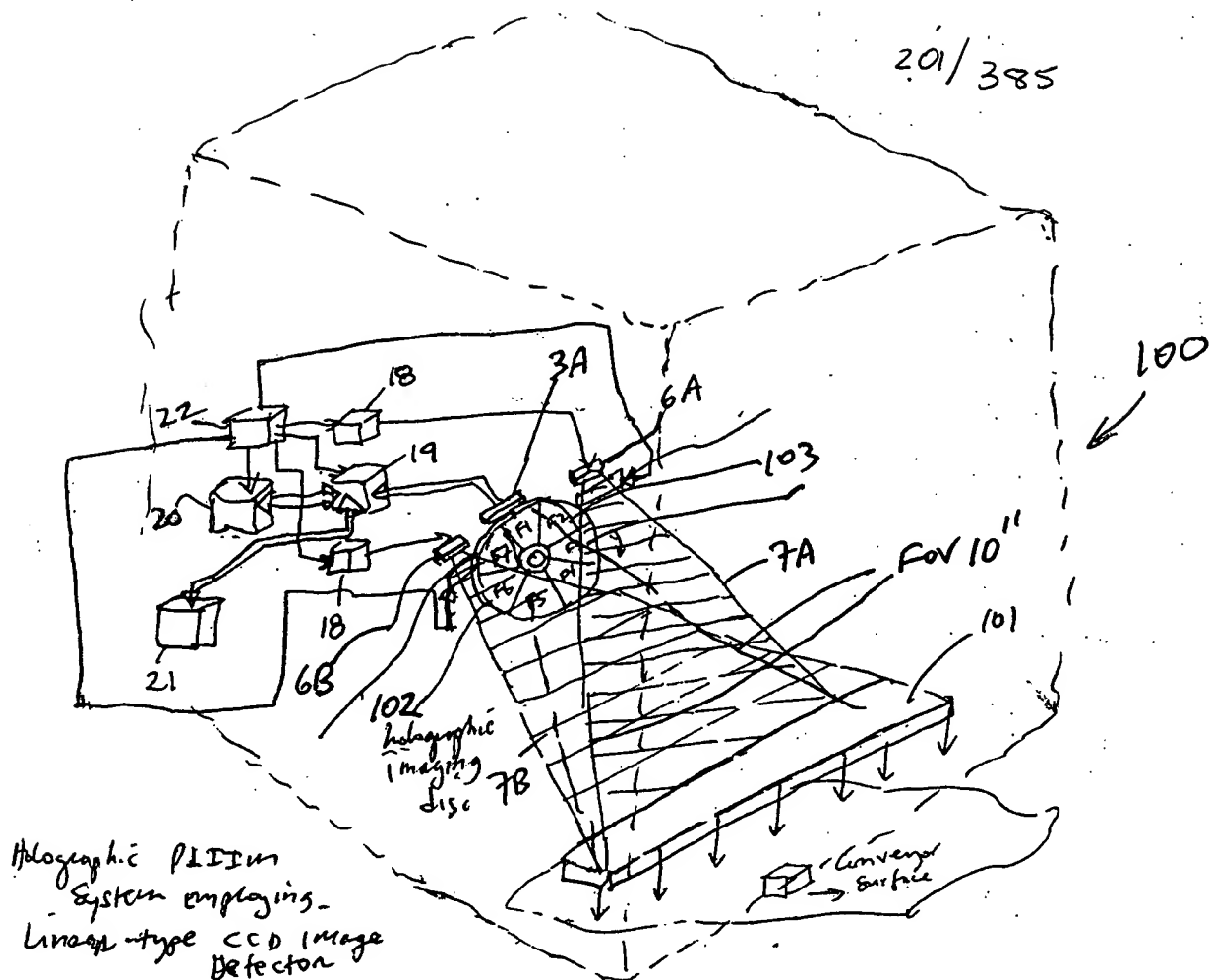


FIG. 6E4

Holographic PLIIM
System employing
Linear-type CCD image
Detector



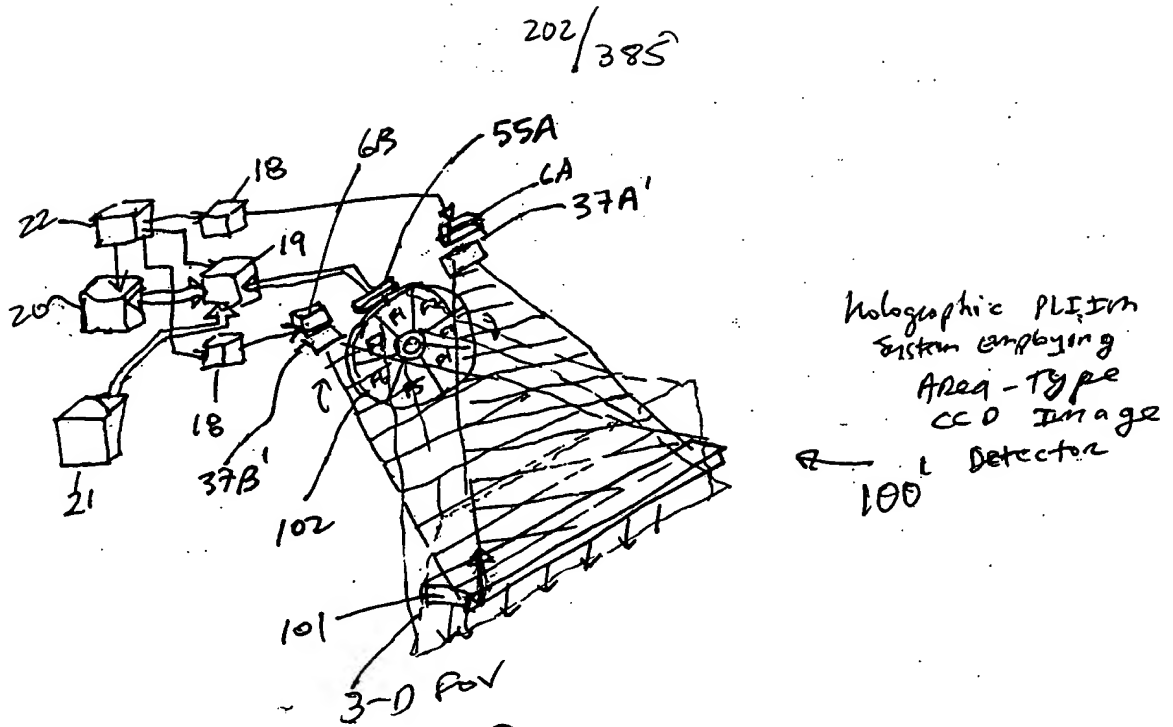


FIG. 8A

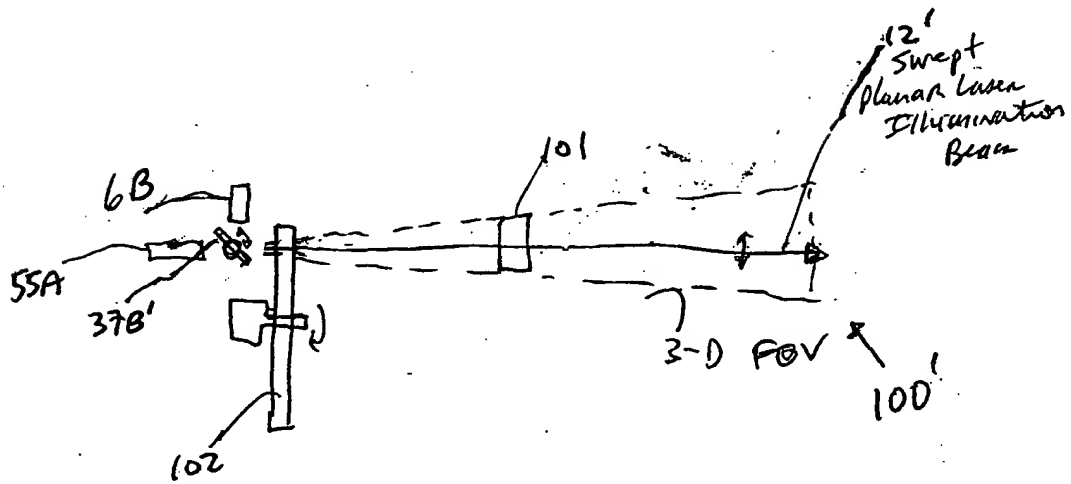


FIG. 8B

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1-D CCD SCANNER EMBODIMENT

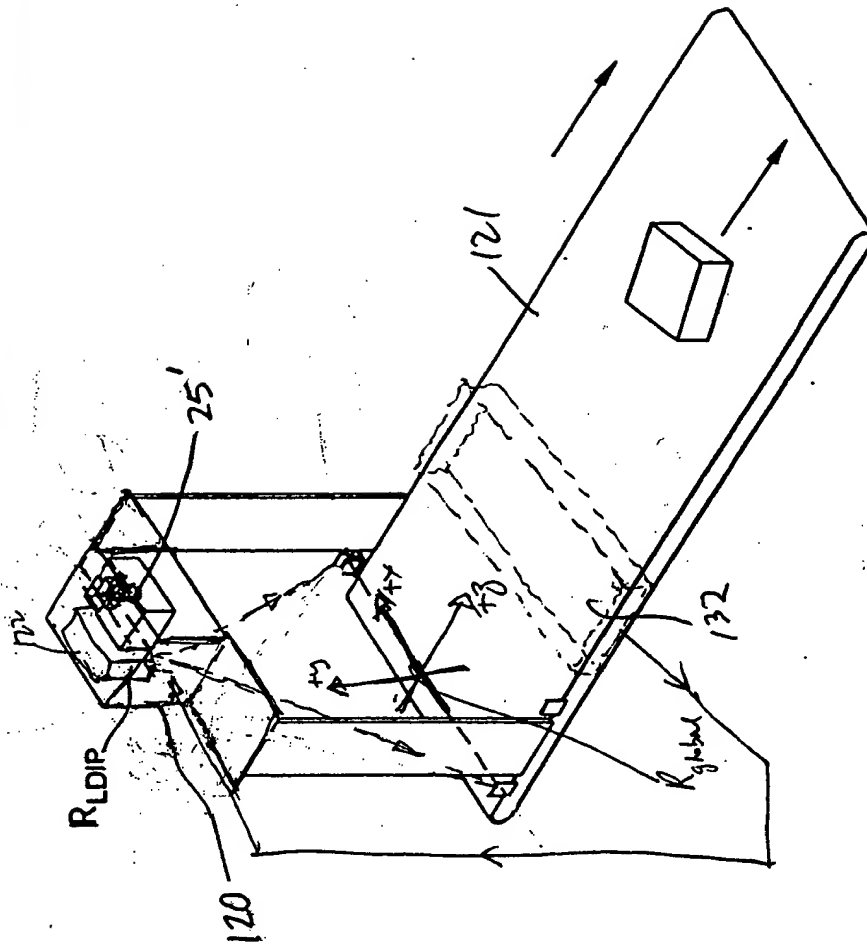
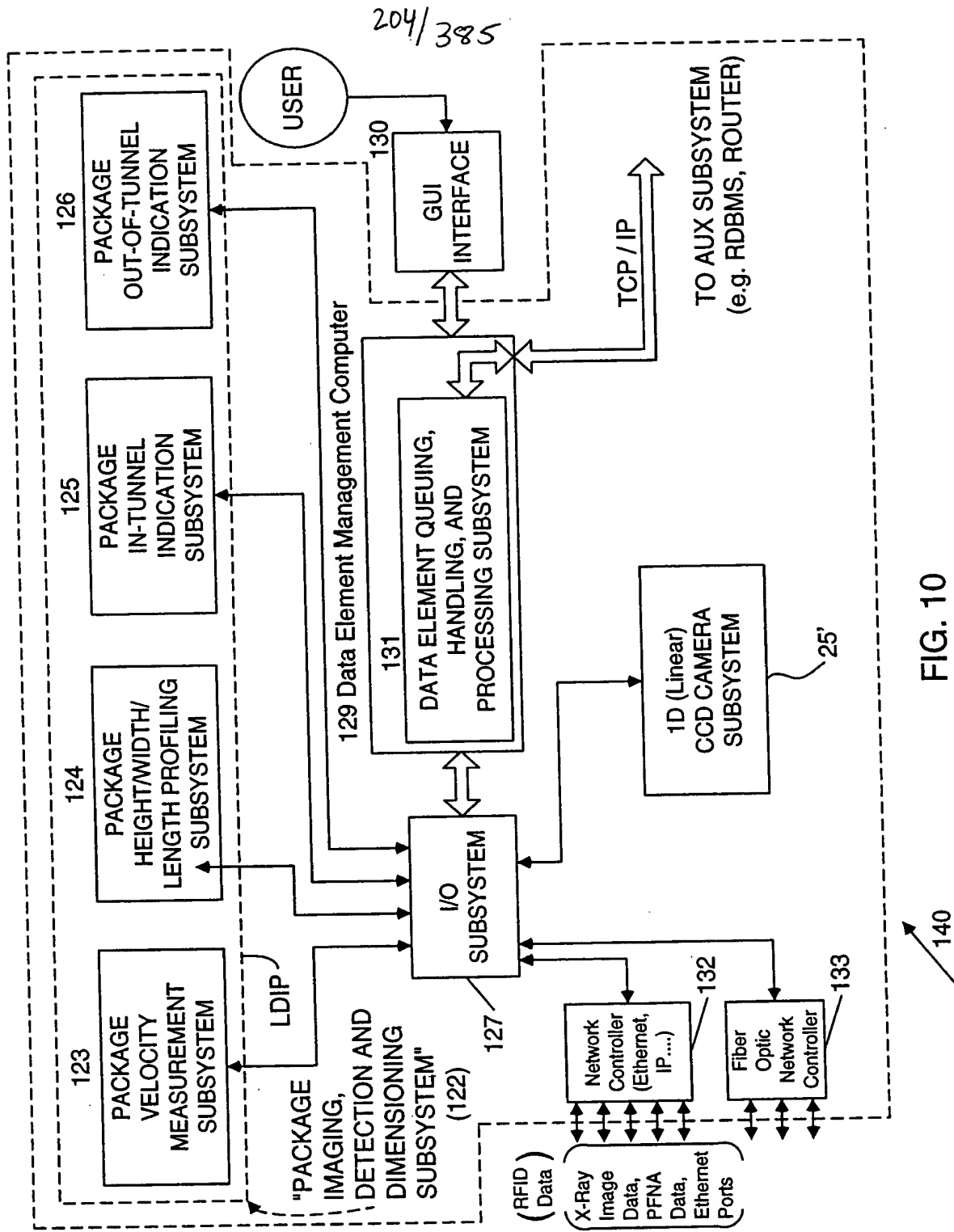
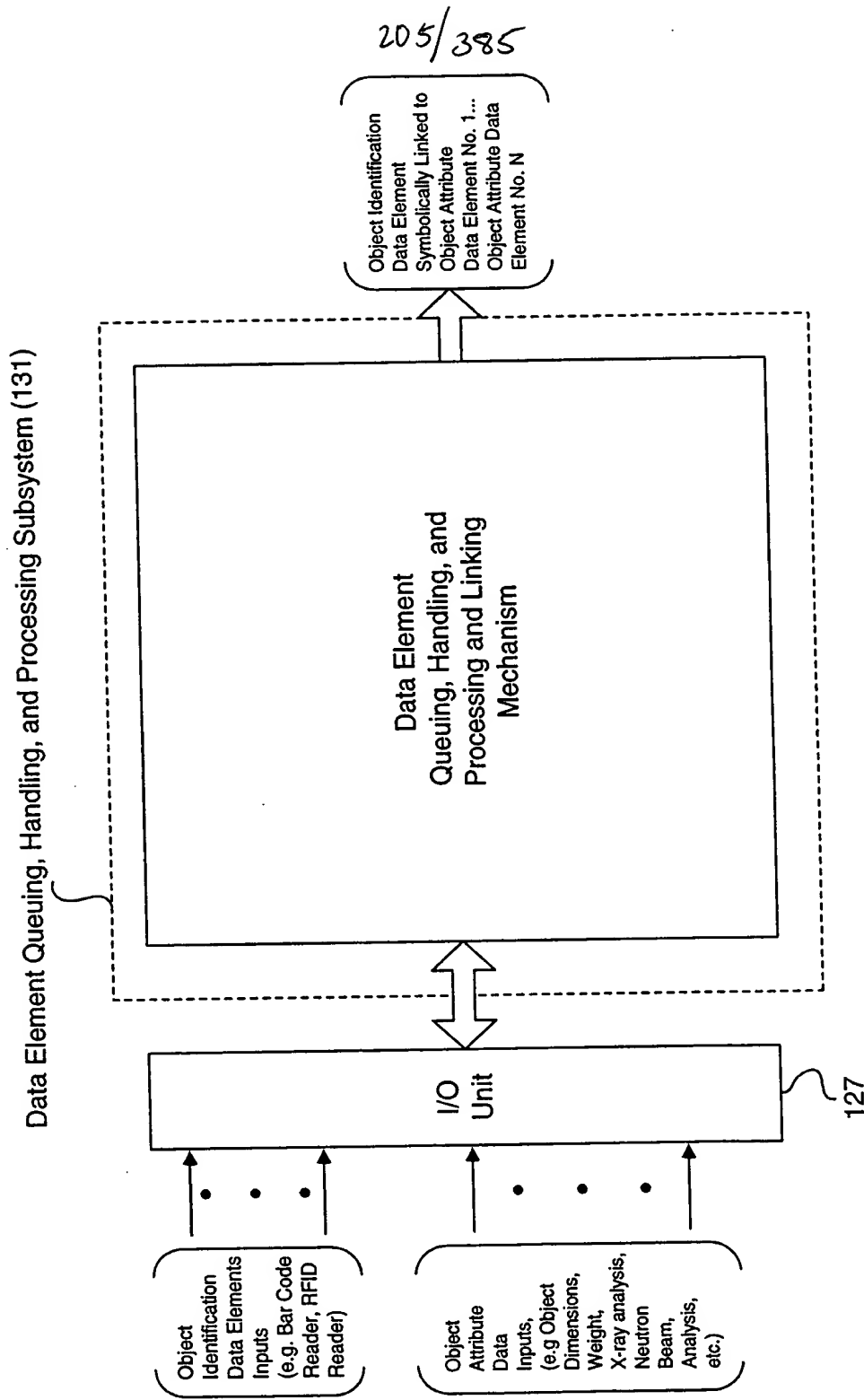


FIG. 9





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**Primary Network
and/or System
Functions:**

A.
Specification of Object
Detection and
Tracking Capability of
System

B.
Specification of Object
Identification
Capability of System

C.
Specification of
Object Attribute
Acquisition Capability
of System

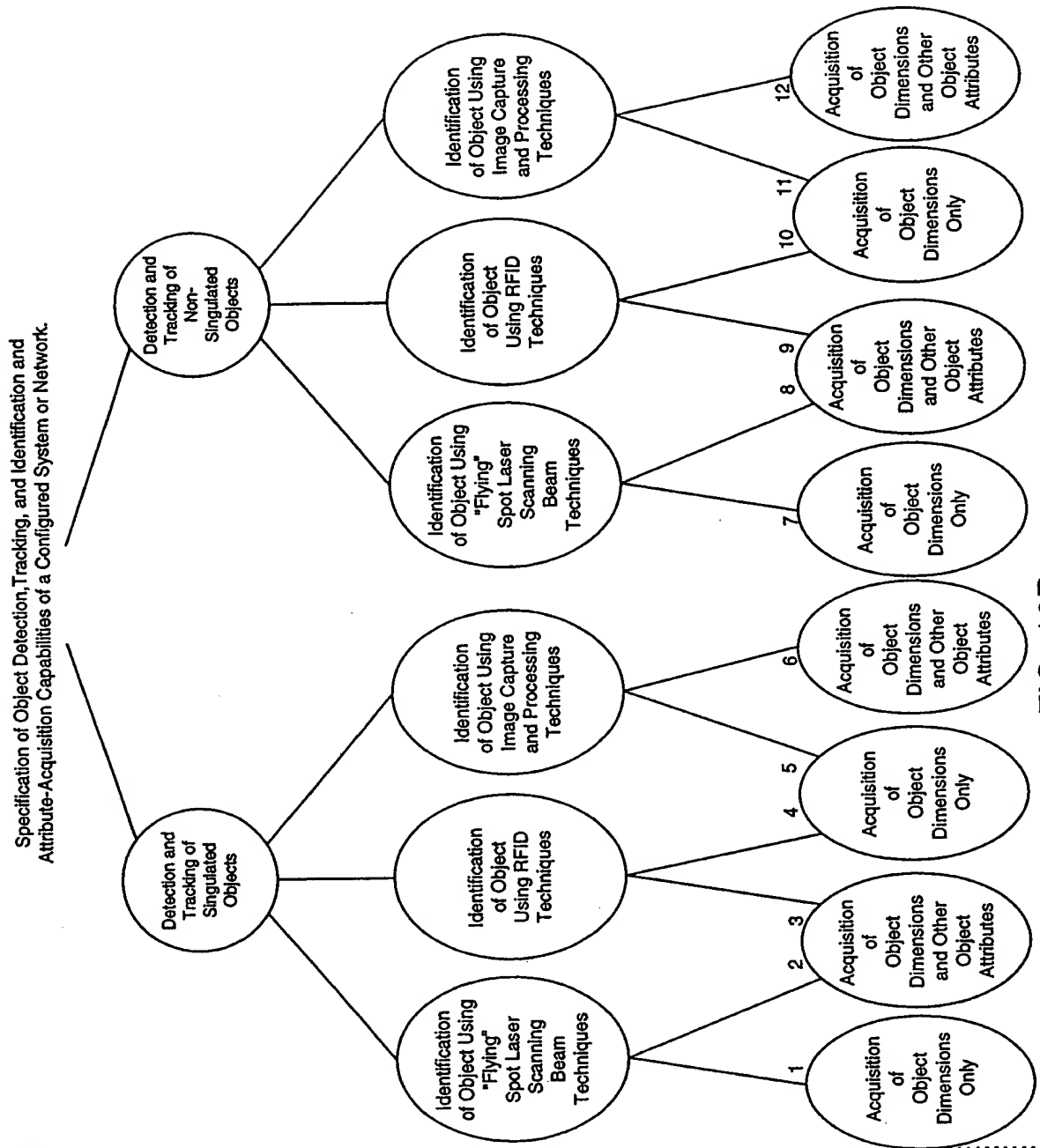


FIG. 10B

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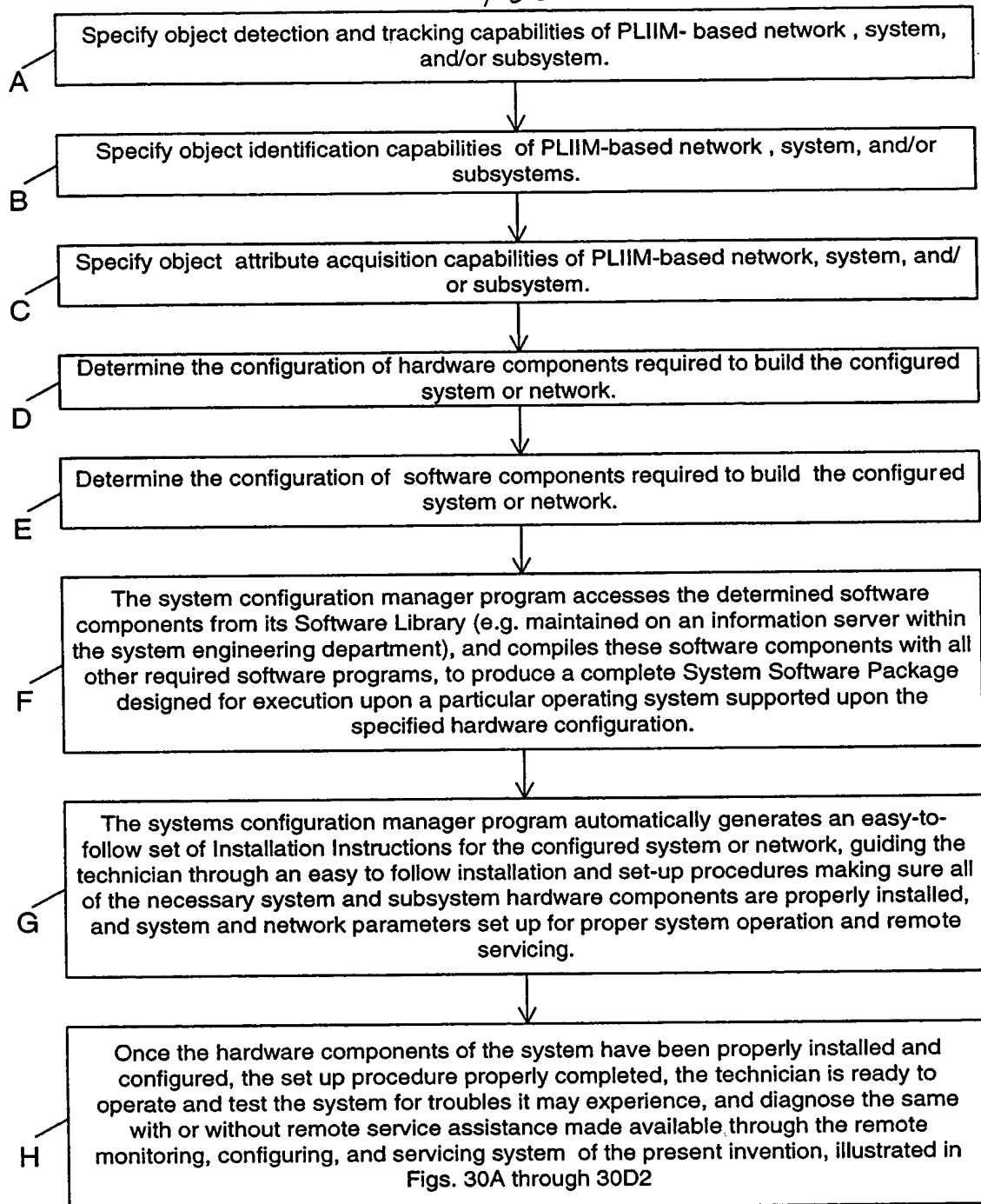


FIG. 10C

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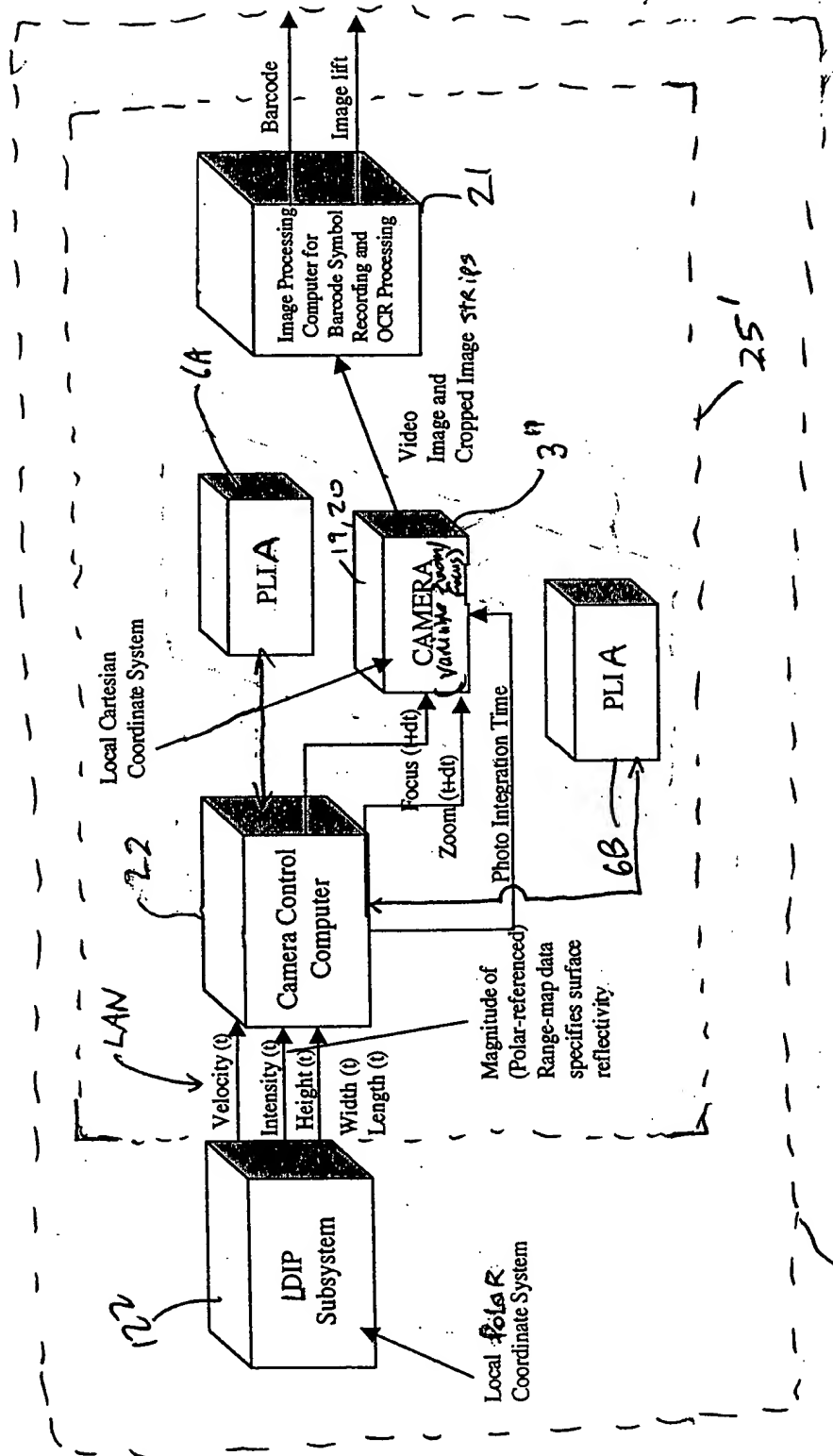


FIG. 11

FIG. 12A

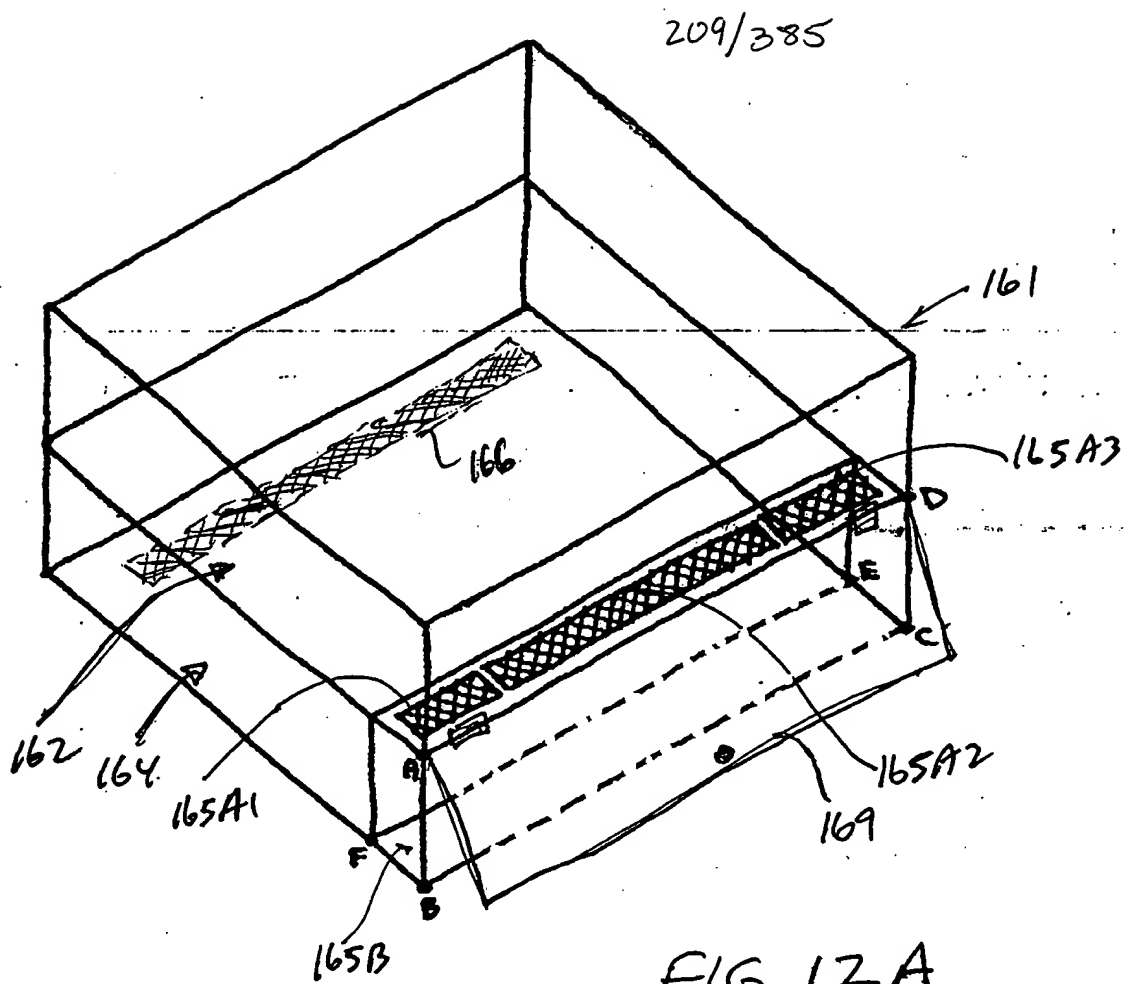


FIG. 12A

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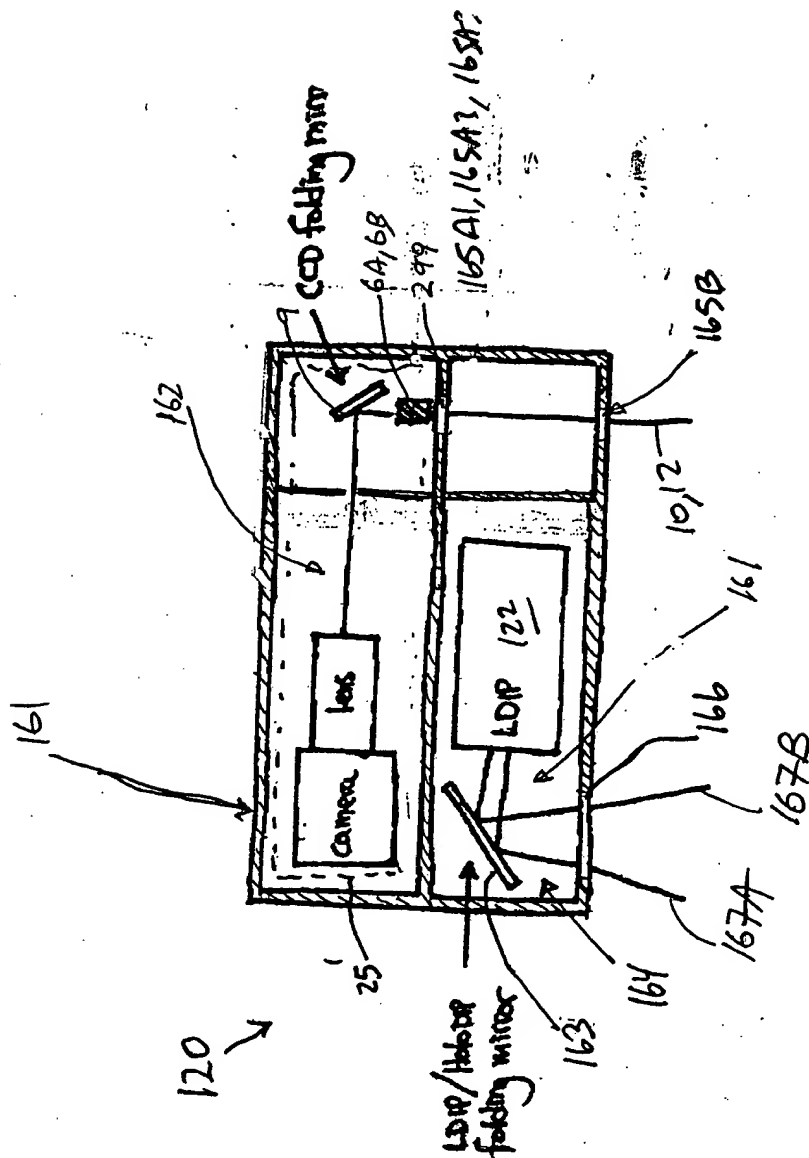


FIG. 12B

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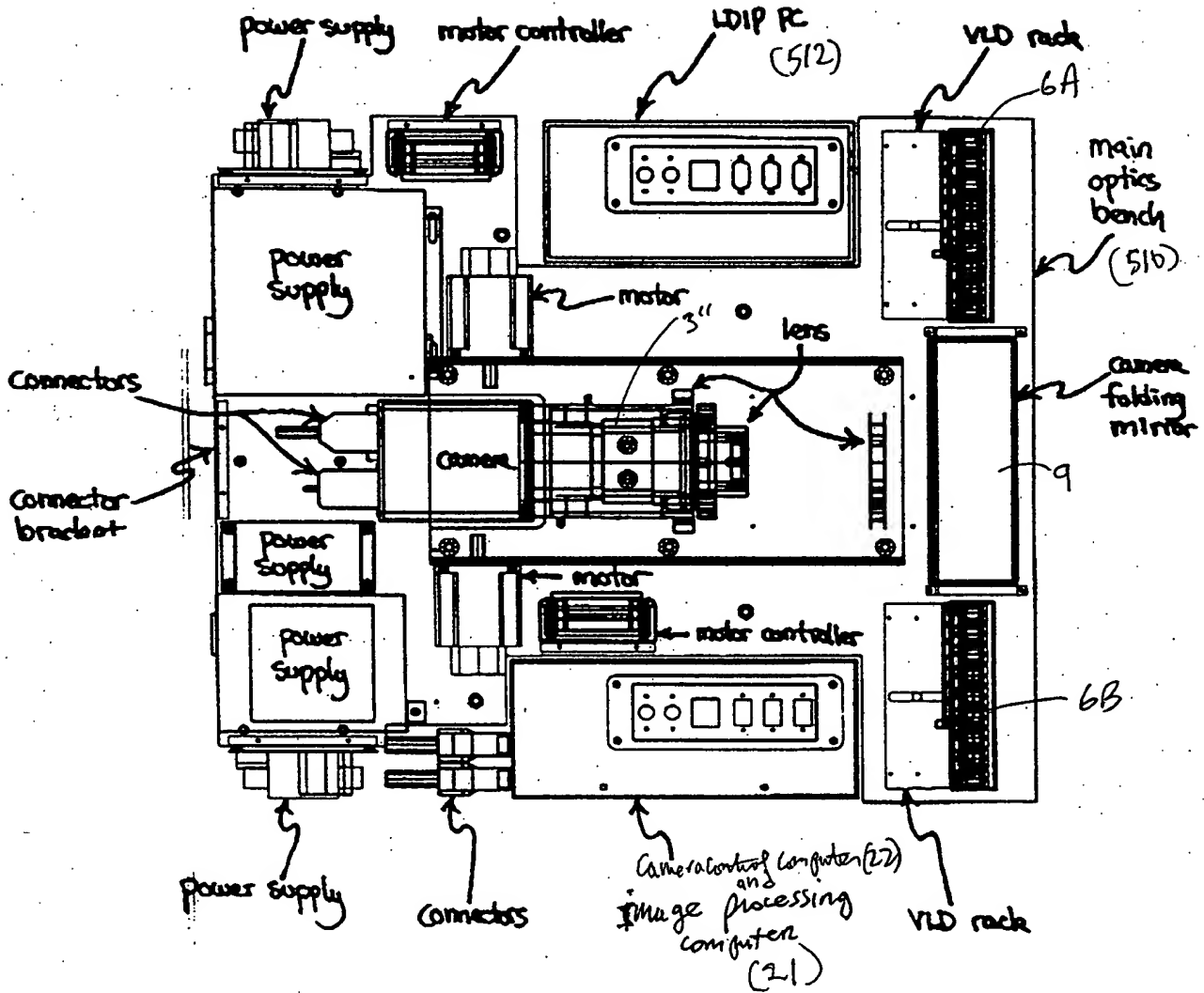


FIG. 12C

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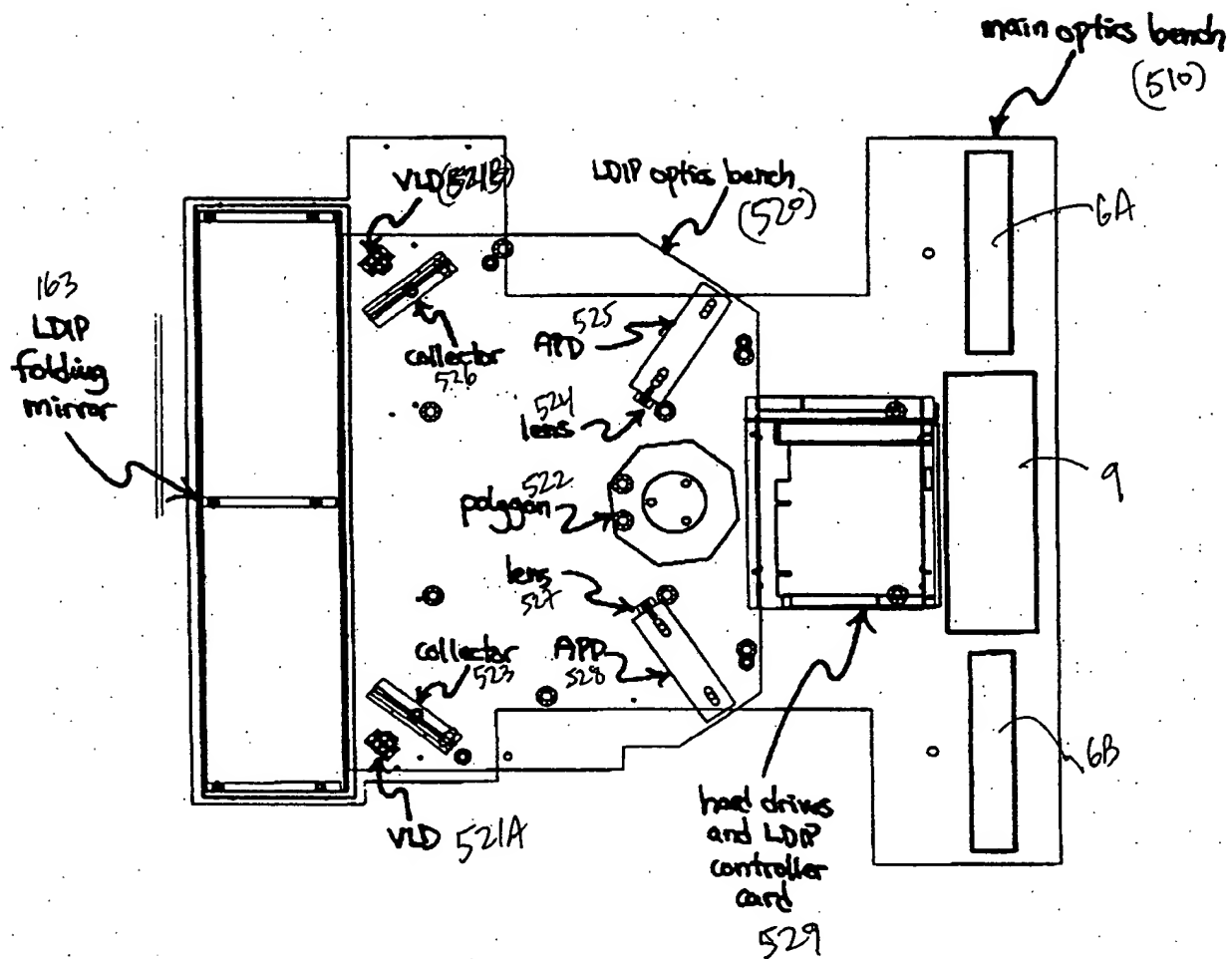
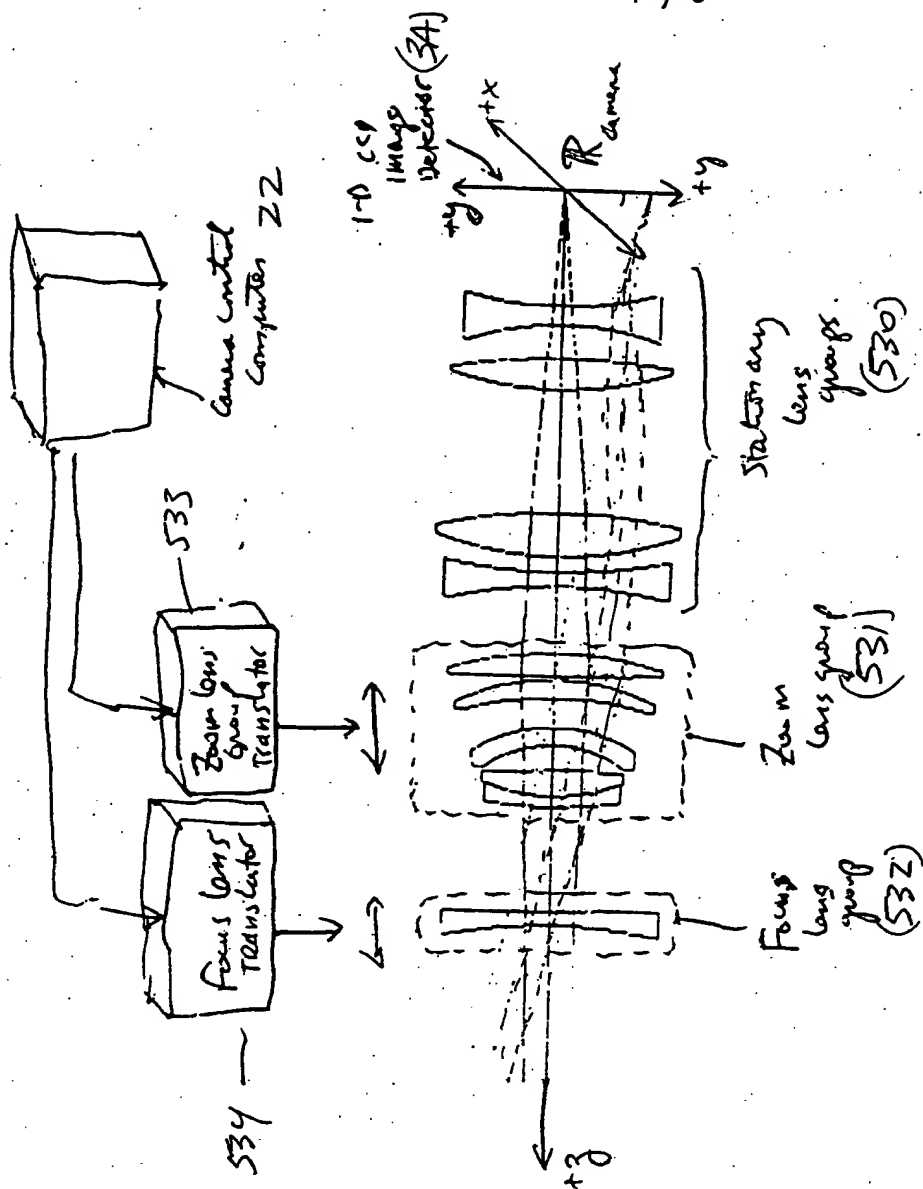


FIG. 12D

FIG. 12E

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(main optics)
(lens groups)

FIG. 12E

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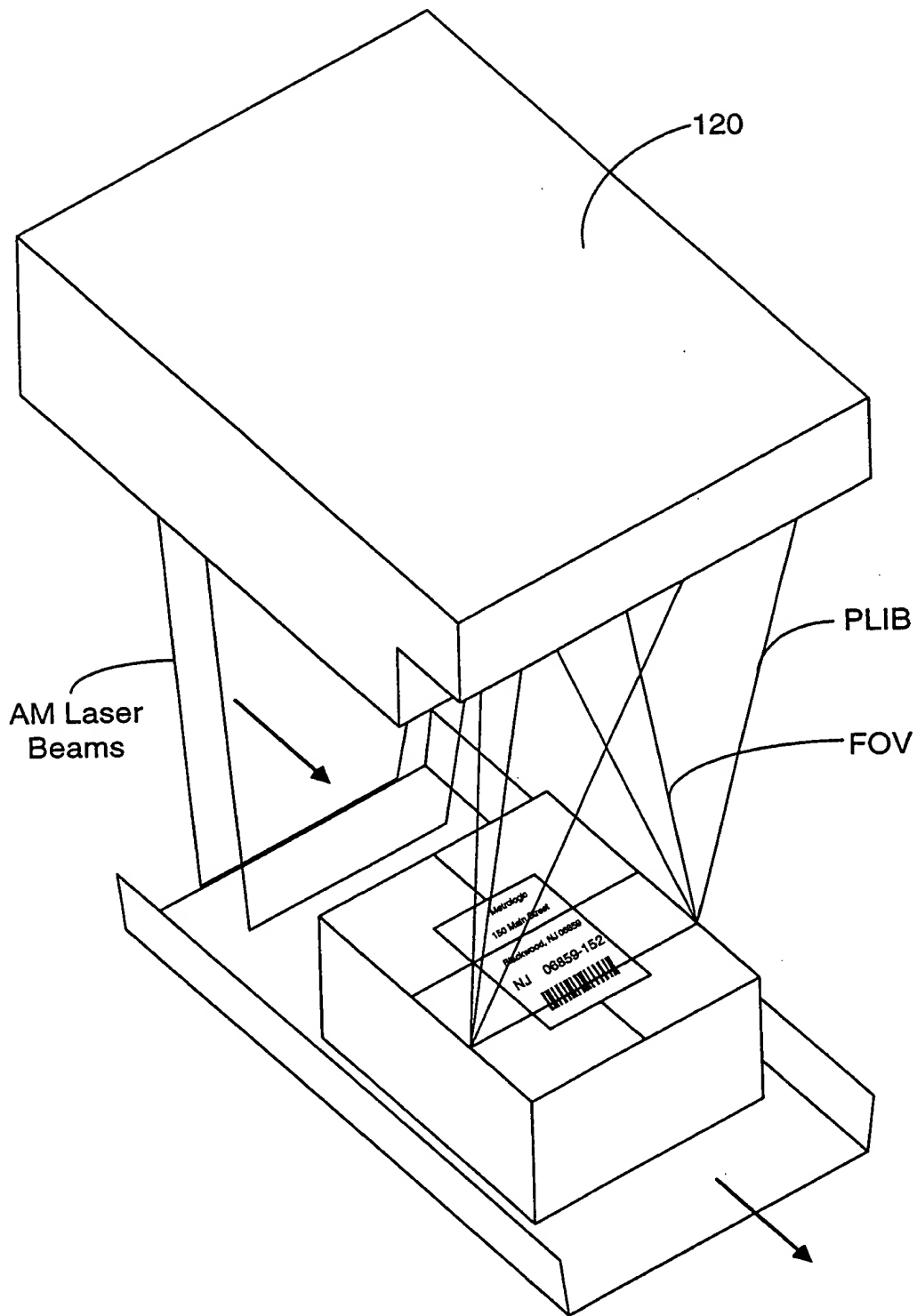


FIG. 13A

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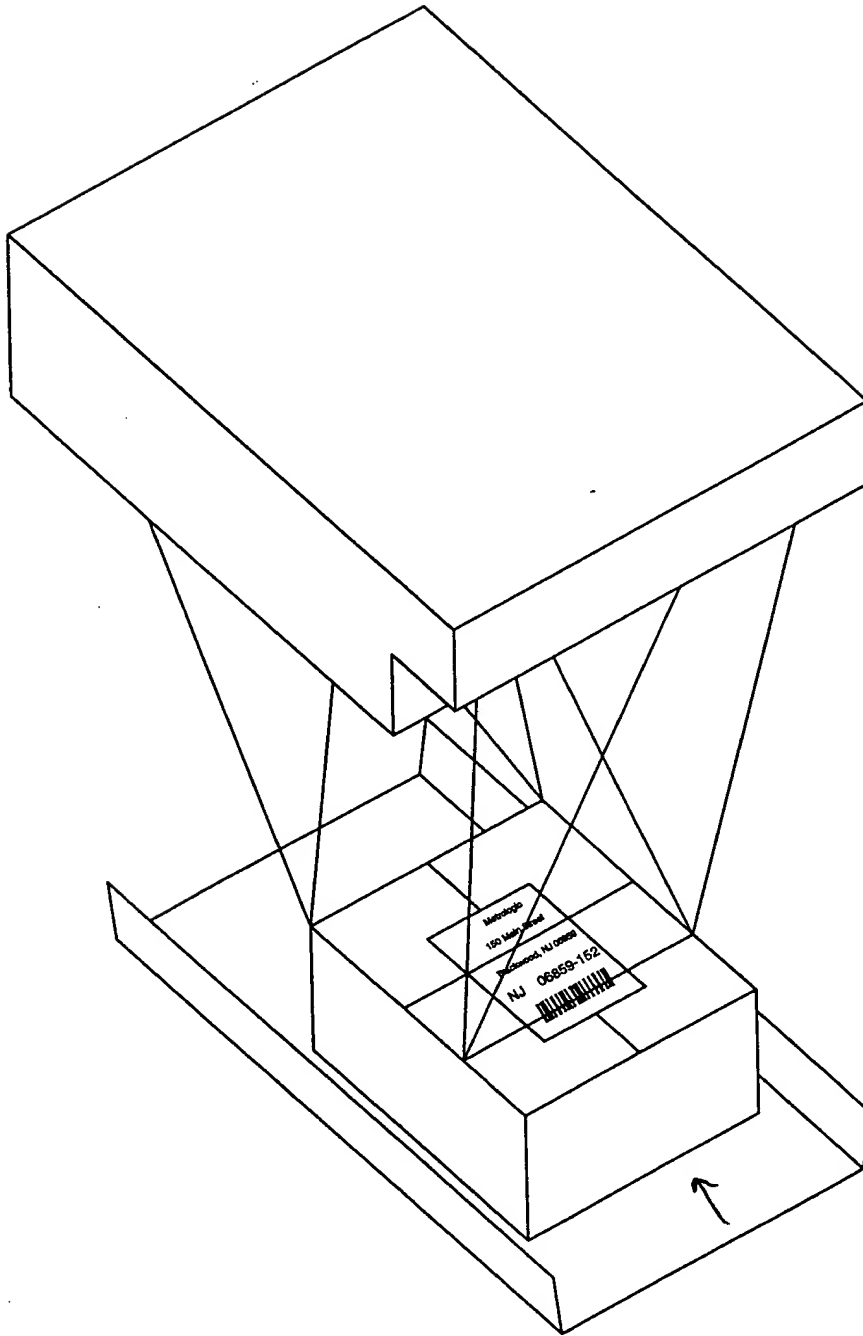


FIG. 13A

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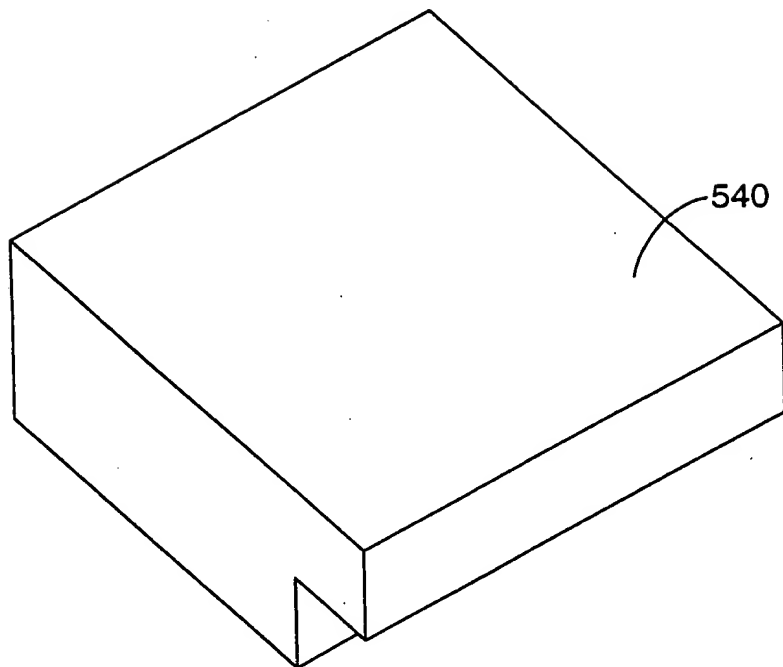


FIG. 13B

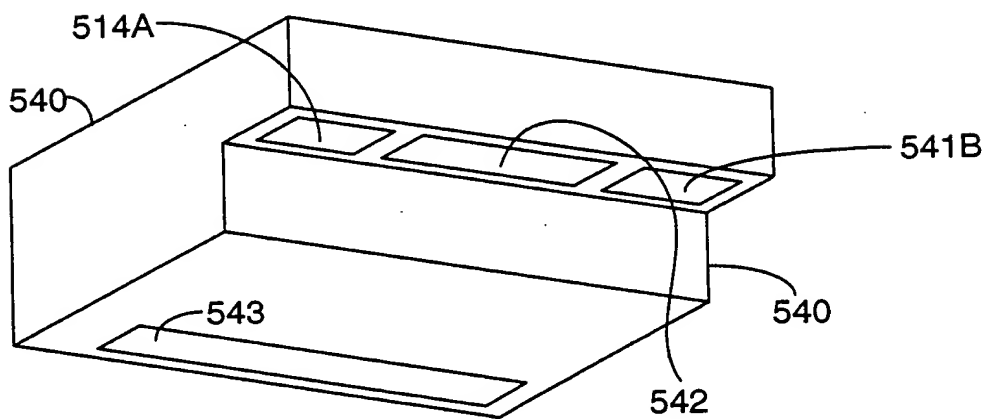


FIG. 13C

FIG. 13B

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 PLLIM-BASED PACKAGE IDENTIFICATION AND
 DIMENSIONING (PID) SYSTEM

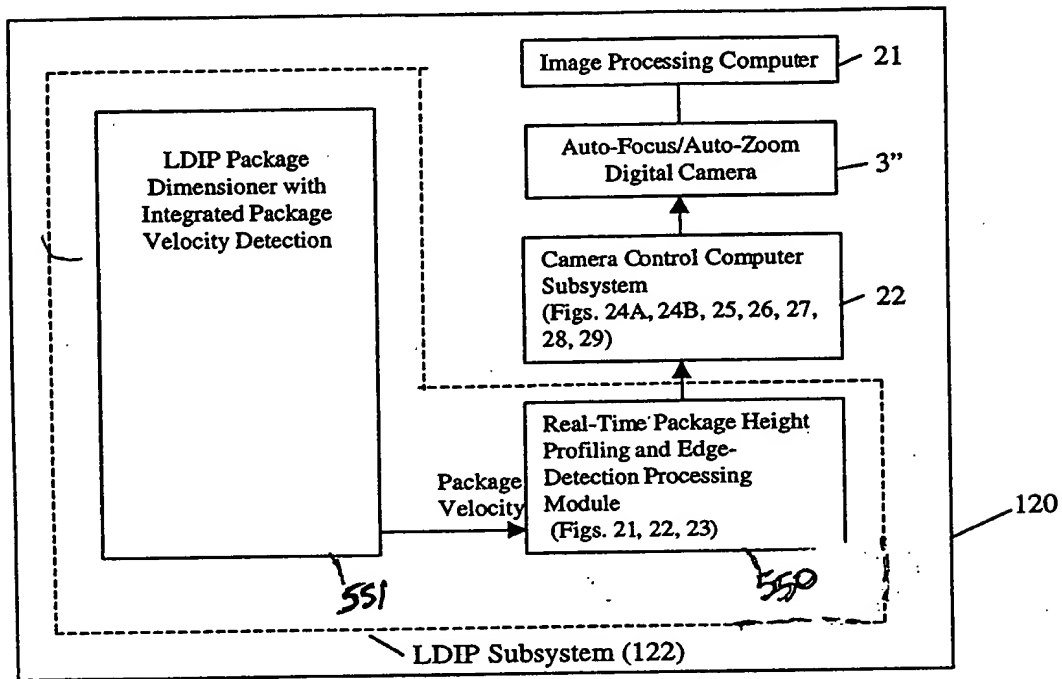


FIG. 14

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LDIP REAL-TIME PACKAGE HEIGHT PROFILE AND EDGE DETECTION METHOD

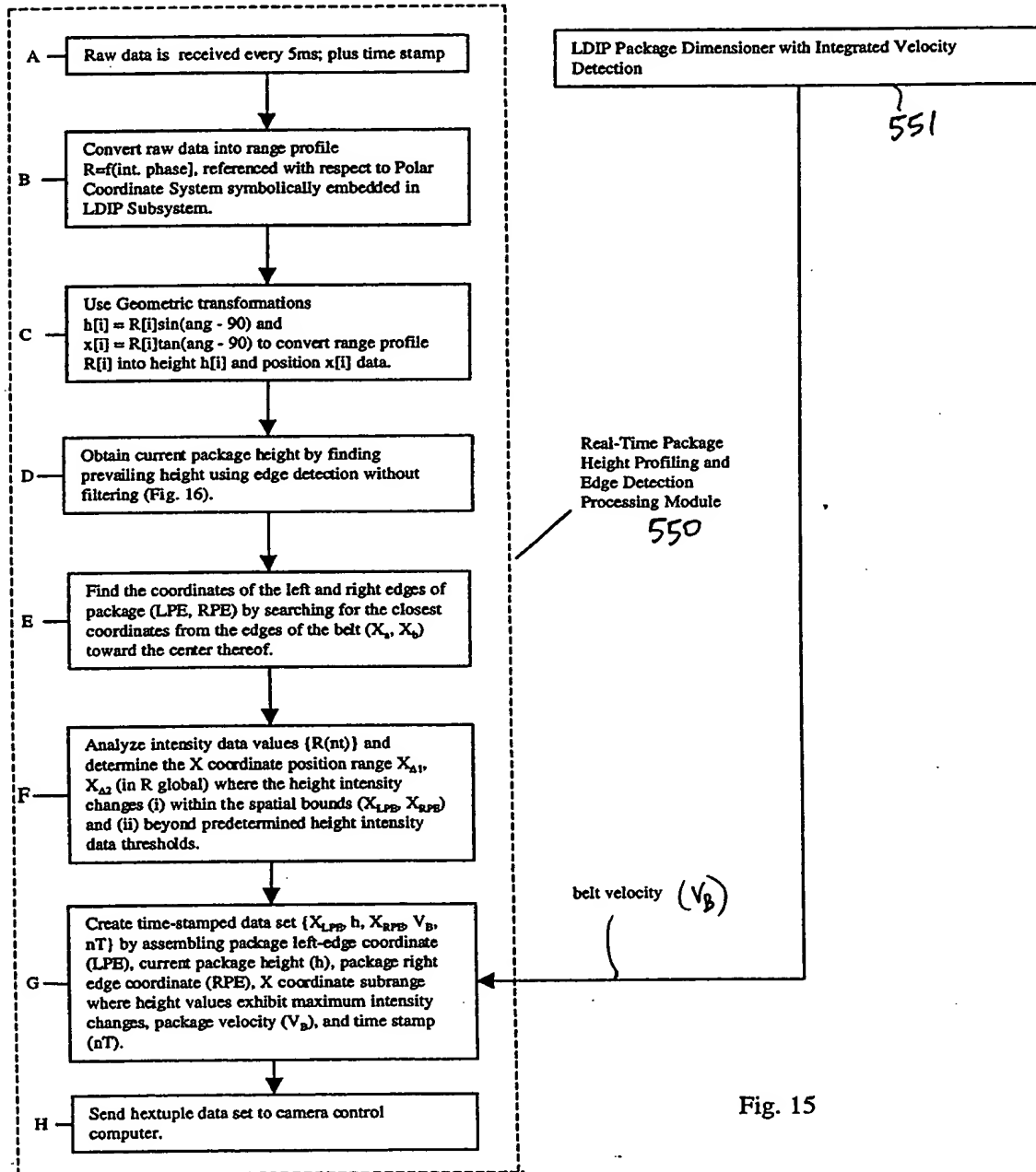
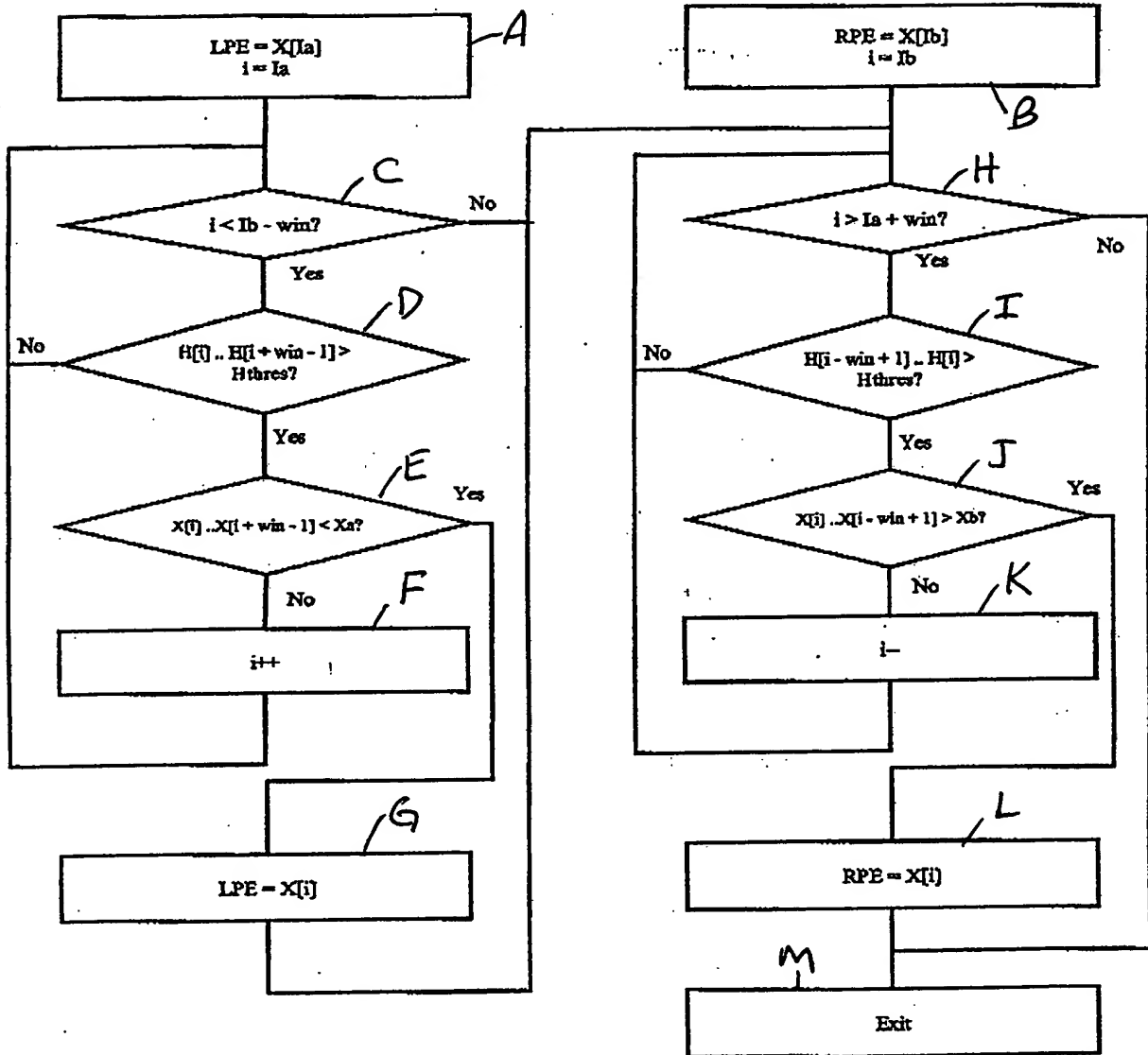


Fig. 15

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LDIP Real Time Package Edge Detection



Xa = location of belt left edge; Xb = location of belt right edge
 Ia = belt edge edge pixel; Ib = belt right edge pixel
 LPE = Left package edge; RPE = Right package edge
 $H[]$ = Pixel height array; $X[]$ = Pixel location array
 win = package detection window

FIG. 16

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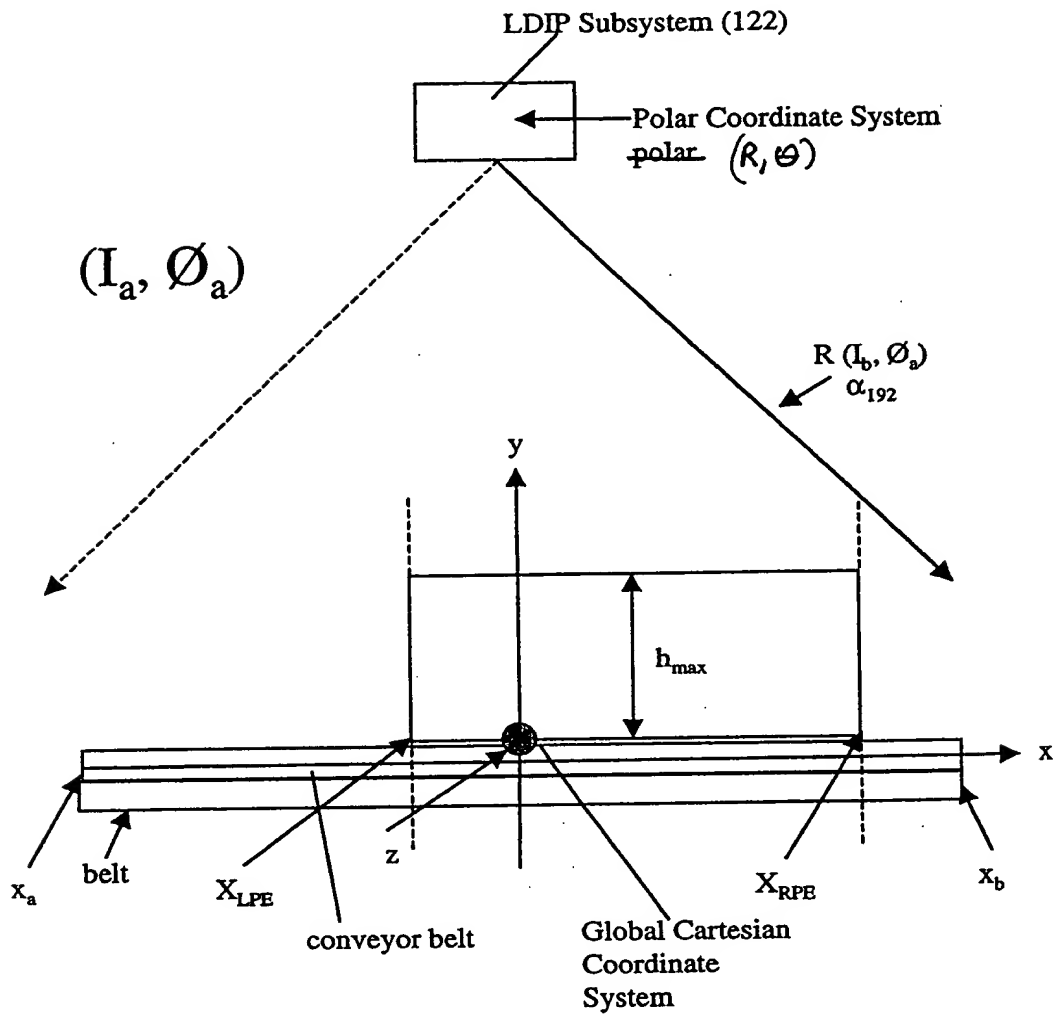
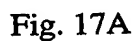
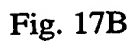


Fig. 17

INFORMATION MEASURED AT SCAN ANGLES BEFORE
COORDINATE TRANSFORMS



Range and Polar



H[]

The diagram shows a horizontal belt segment divided into 192 equal-width cells. The cells are indexed from 1 to 192, with the first cell on the left and the last cell on the right. The height of each cell is labeled $y(\alpha_i)$ and the position value is labeled $x(\alpha_i)$, where α_i is the index of the cell. The first cell is labeled $(x, y)_{\alpha_1}$ and the last cell is labeled $(x, y)_{\alpha_{192}}$. A vertical line on the left side of the first cell is labeled "height value $y(\alpha_1)$ and position value $x(\alpha_1)$ measured at left belt edge".

Fig. 17C

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CAMERA CONTROL PROCESS CARRIED OUT WITHIN THE CAMERA CONTROL SUBSYSTEM OF EACH OBJECT IDENTIFICATION AND ATTRIBUTE ACQUISITION SYSTEM OF PRESENT INVENTION

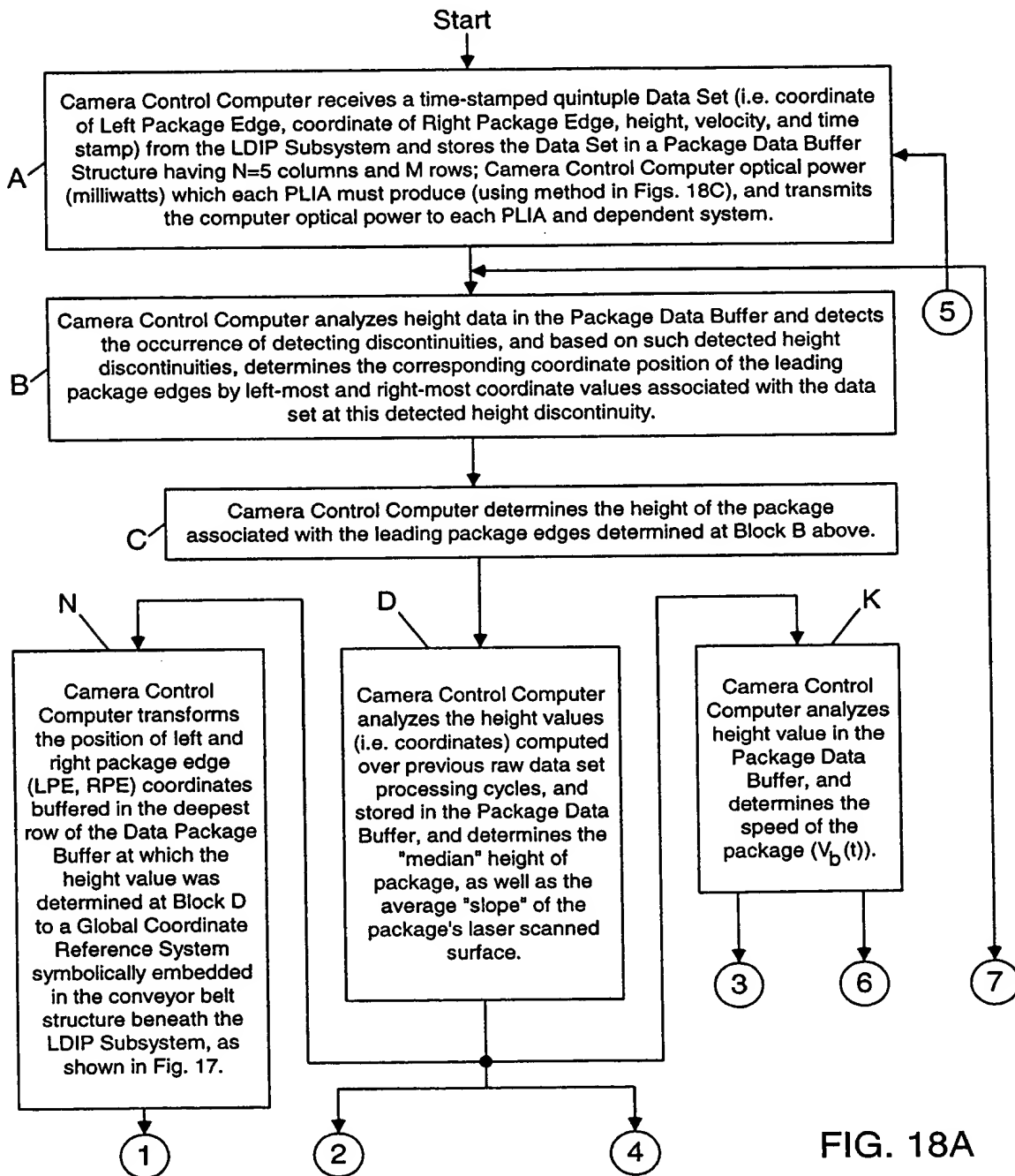
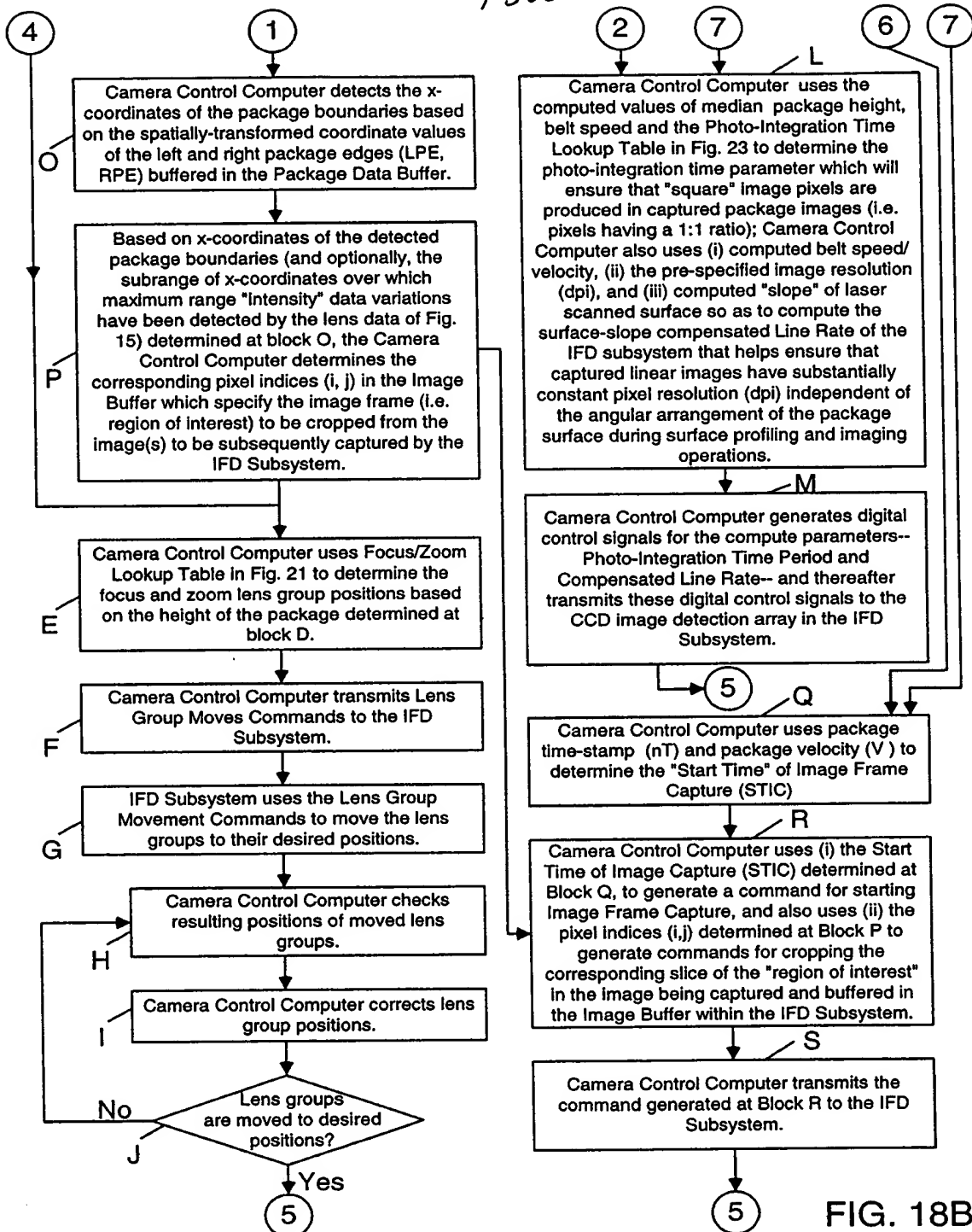


FIG. 18A

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METHOD OF COMPUTING OPTICAL OUTPUT POWER FROM CASE
DIODES IN PLANAR LASER ILLUMINATION ARRAY (PLIA) FOR
CONTROLLING CONSTANT WHITE LEVEL IN IMAGE PIXELS CAPTURED
BY PLIIM-BASED LINEAR IMAGER

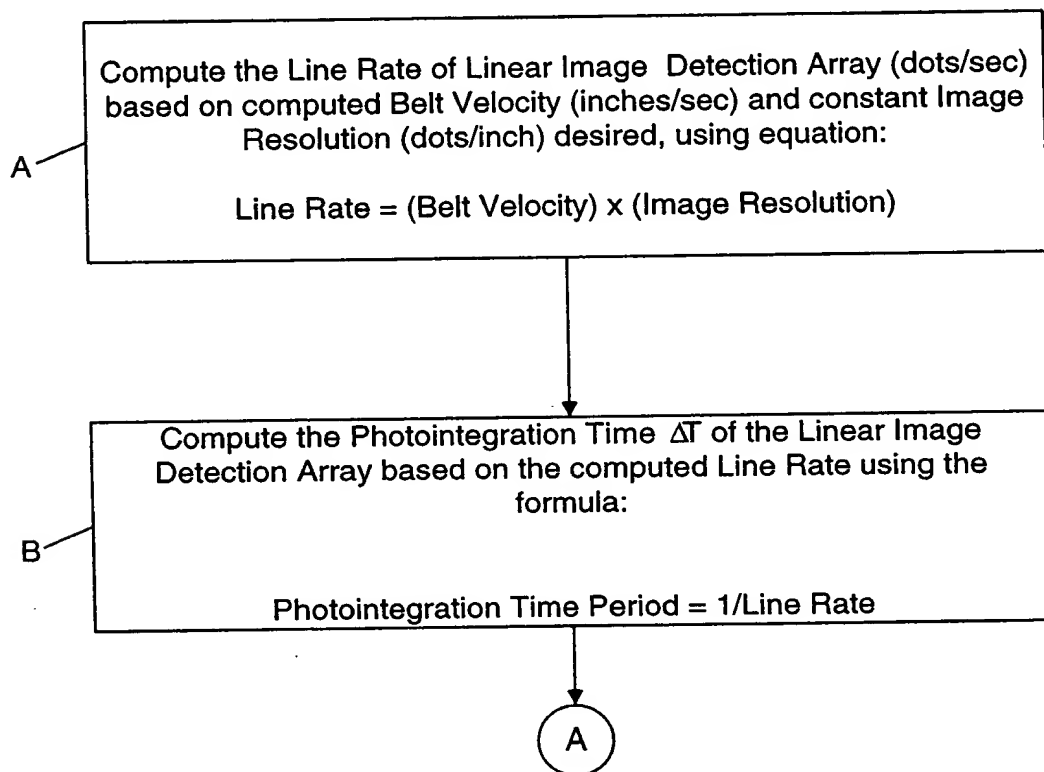


FIG. 18C1

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Compute the Optical Power (milliwatts) of each PLIA based on computed Photointegration Time Period (ΔT) using the following formula:

$$\text{Optical Power of VLD (milliwatts)} = \frac{\text{constant}}{\text{Photointegration Time Period } \Delta T}$$

FIG. 18C2

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METHOD OF COMPUTING COMPENSATED LINE RATE FOR CORRECTING
VIEWING-ANGLE DISTORTION OCCURING IN IMAGES OF OBJECT
SURFACES CAPTURED AS OBJECT SURFACES MOVE PAST PLIIM-
BASED LINEAR IMAGER AT NON-ZERO SKEWED ANGLE

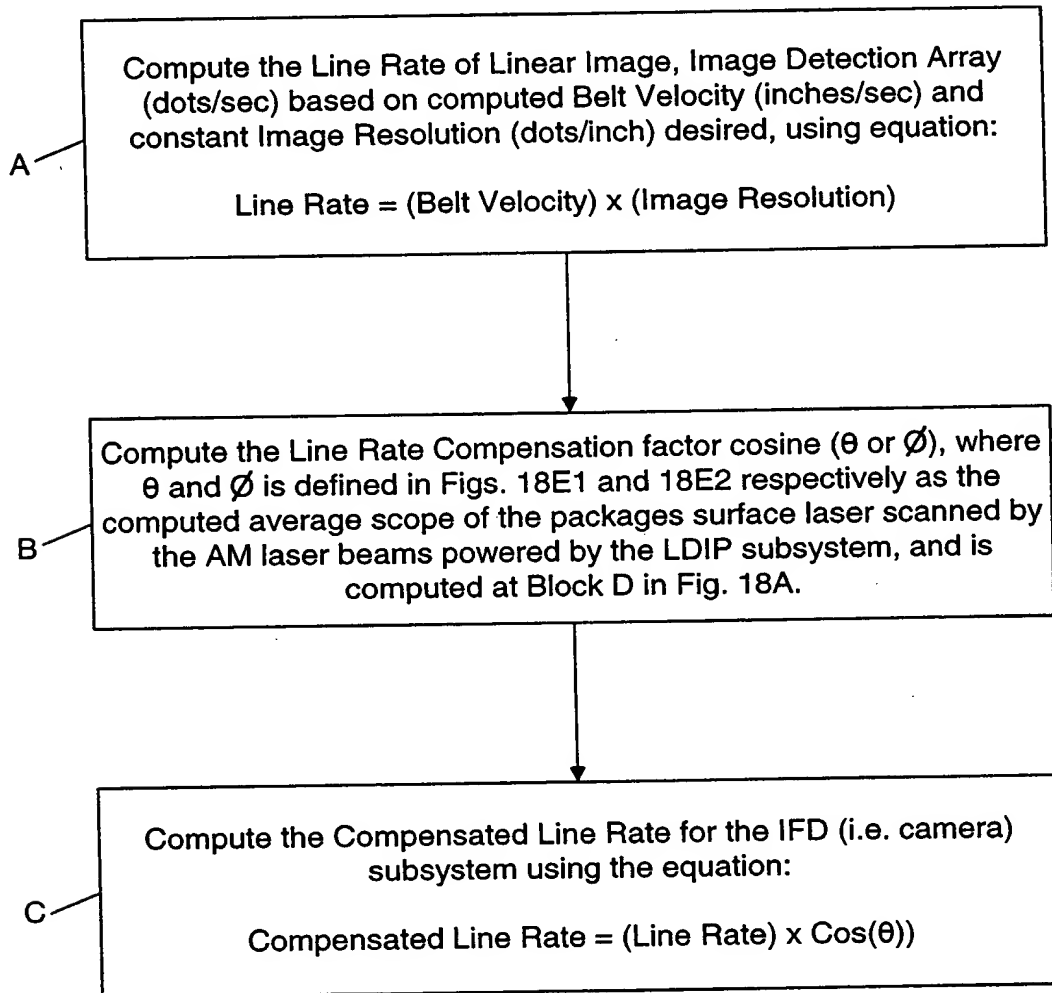


FIG. 18D

CASE 1:
Top Down Imaging

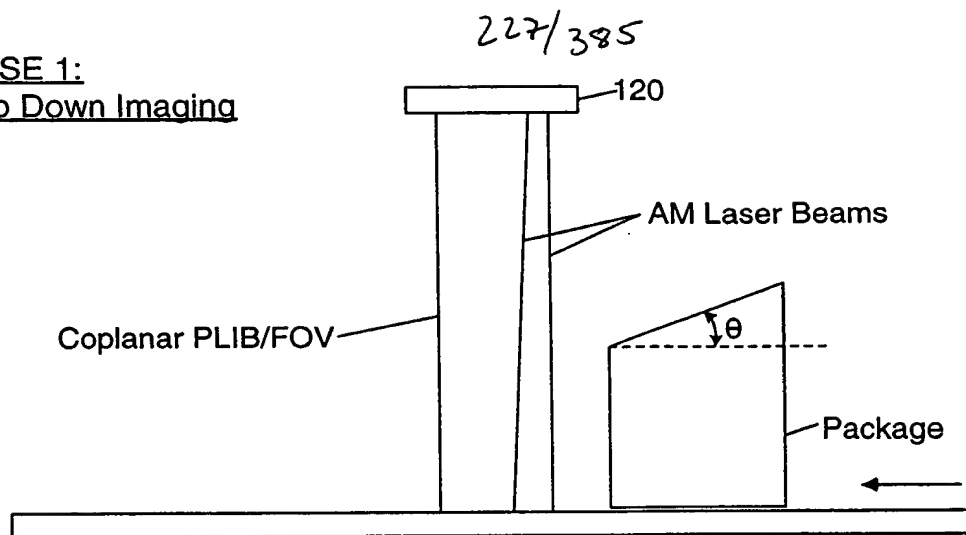


FIG. 18E1

CASE 2:
Side Imaging

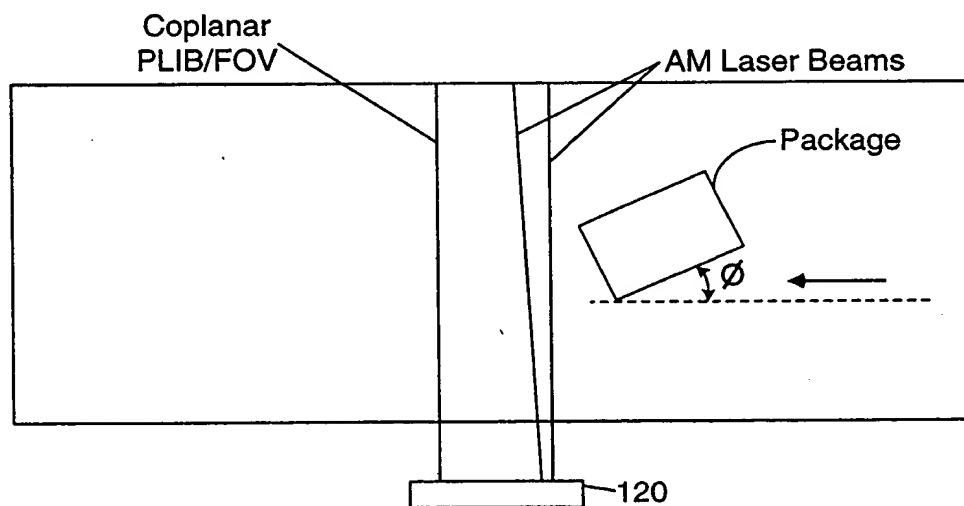


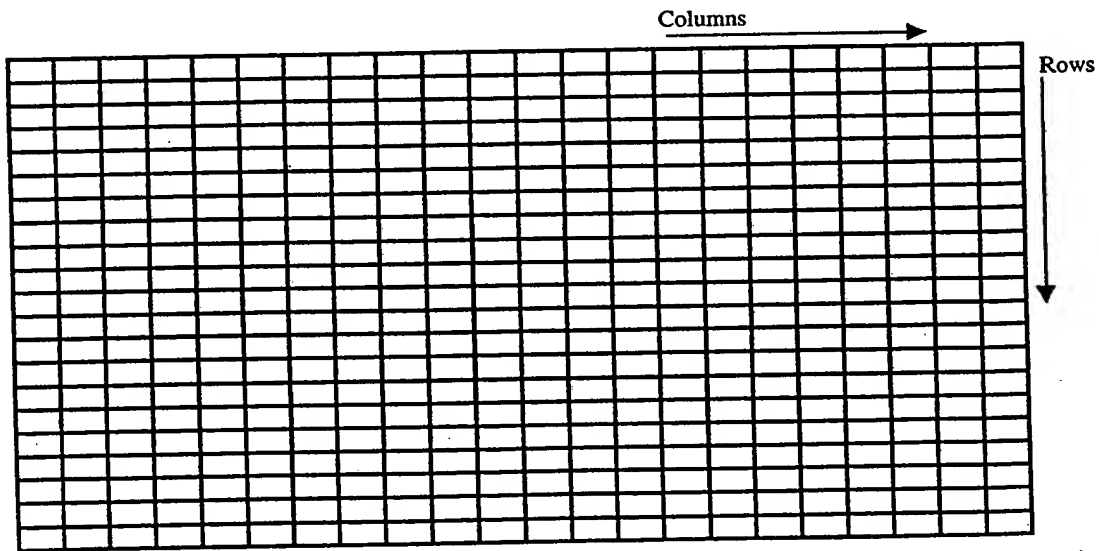
FIG. 18E2

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X coordinate subrange where
maximum range "intensity"
variations have been detected

Left Package Edge (LDE)	Package Height (h)	Right Package Edge (RPE)	Package Velocity	Time-stamp (nT)	
					Row 1
					Row 2
					Row 3
					Row 4
					Row 5
					Row M
Package Data Buffer (FIFO)					

Fig. 19



Camera Pixel Data Buffer
pixel indices (i,j.)

Fig. 20

TTTTTSSSSSSSSSS

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Zoom and Focus Lens Group position
Look-up Table

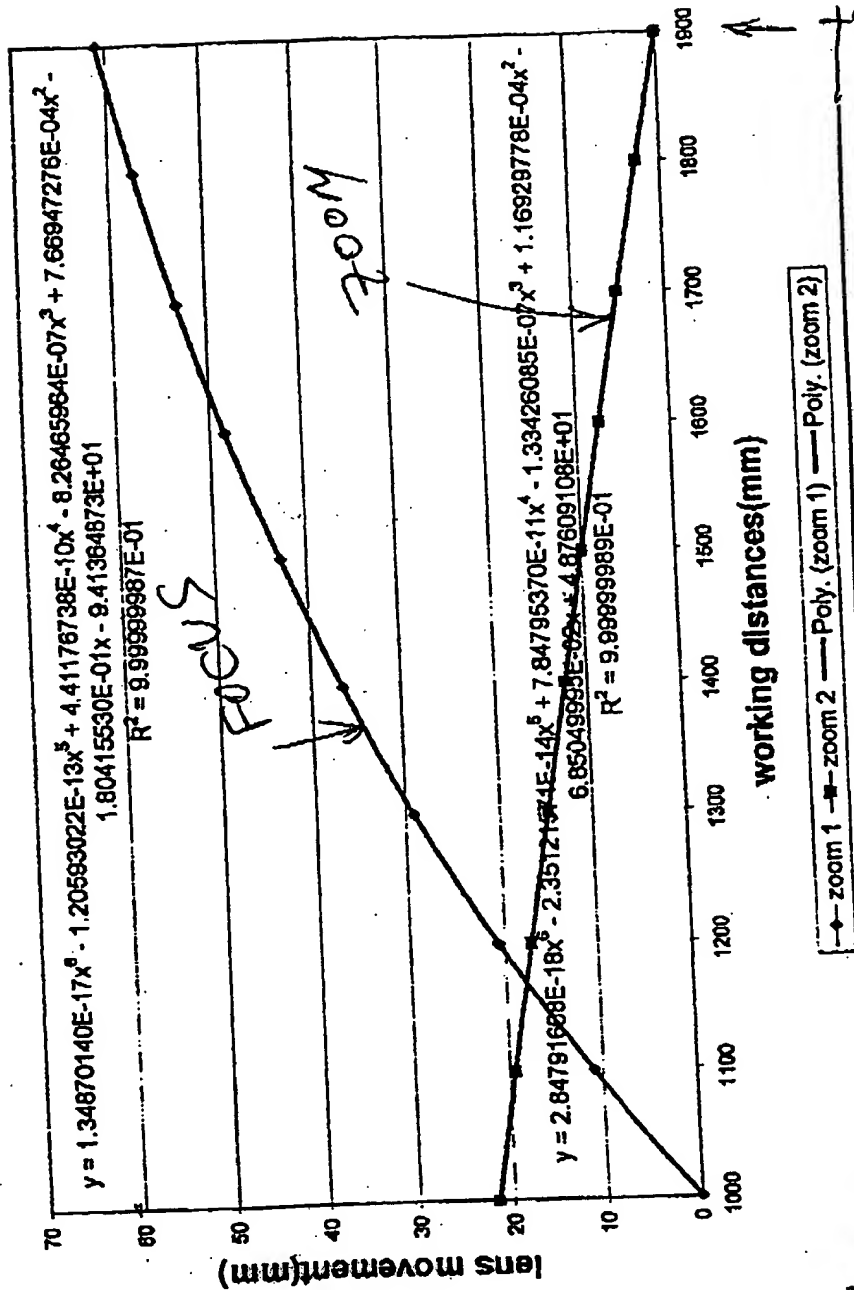
Distance from Camera H (mm)	Zoom group distance (mm) Y (Zoom)	Focus group distance (mm) Y (Focus)
1000	21.57489228	2.47E-05
1100	19.38089696	10.99009783
1200	17.10673434	20.65783177
1300	14.77137314	29.10917002
1400	12.39153565	36.47312595
1500	9.979114358	42.87845436
1600	7.540639114	48.44003358
1700	5.078794775	53.25495831
1800	2.595989366	57.40834303
1900	0.099972739	60.98883615

(use interpolation techniques for walking distances between listed points in table)

FIG. 21.

* Note: On feed distance & zoom (left hand graph) in camera lens are coupled (inter-dependent) in camera has a fixed aperture F5.6

Focus and Zoom lens movement vs. working distances



↑ (inches) 30 above conveyor belt

← package height above conveyor

conveyor-belt surface

FIG. 22A

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DATE 08/05/00

Photo-Integration Time Look-Up Table

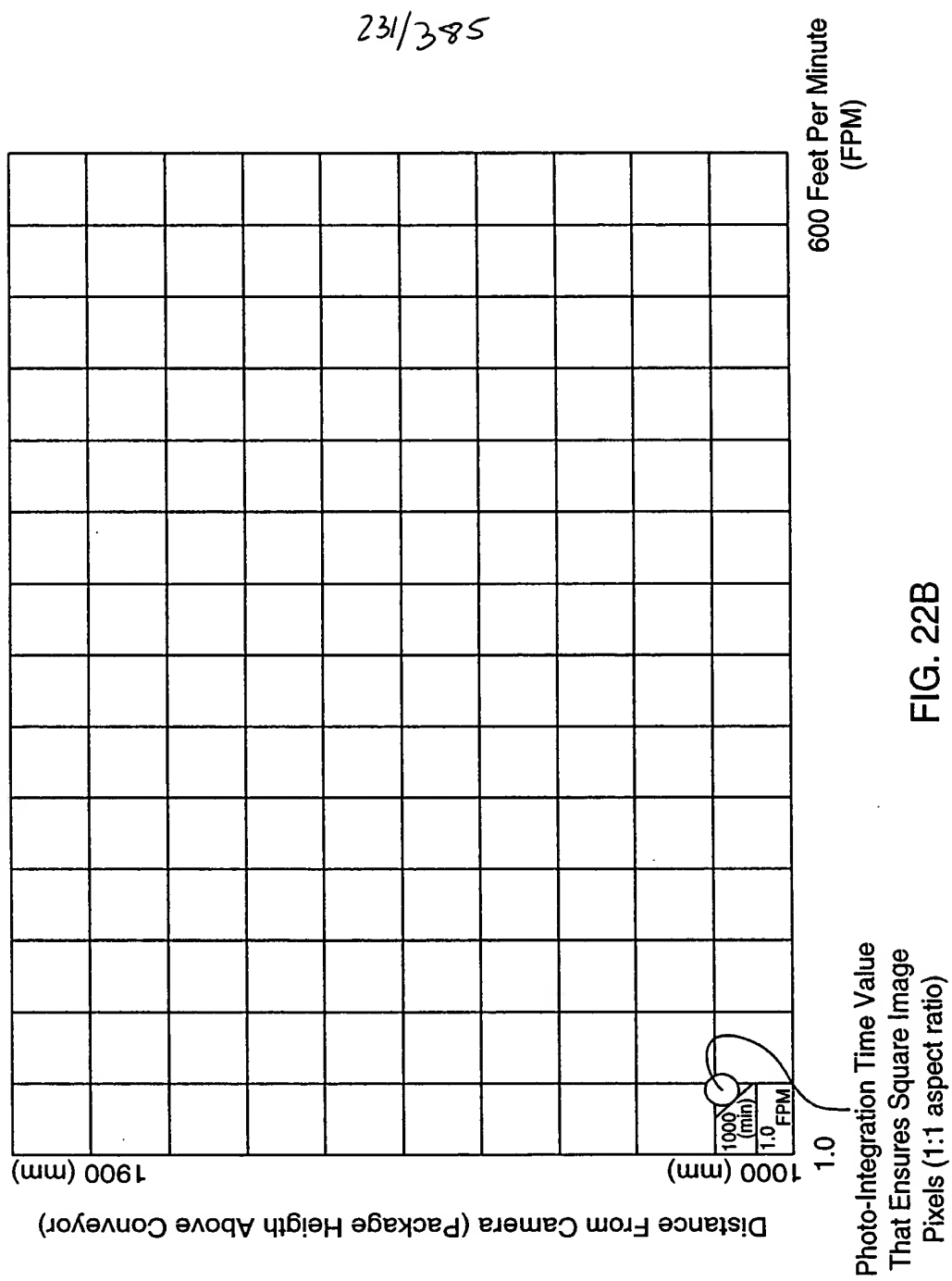


FIG. 22B

3D Surface Profile And High Resolution
Linear Image Data Capture
At PLIIM-Based Profiling
And Imaging System

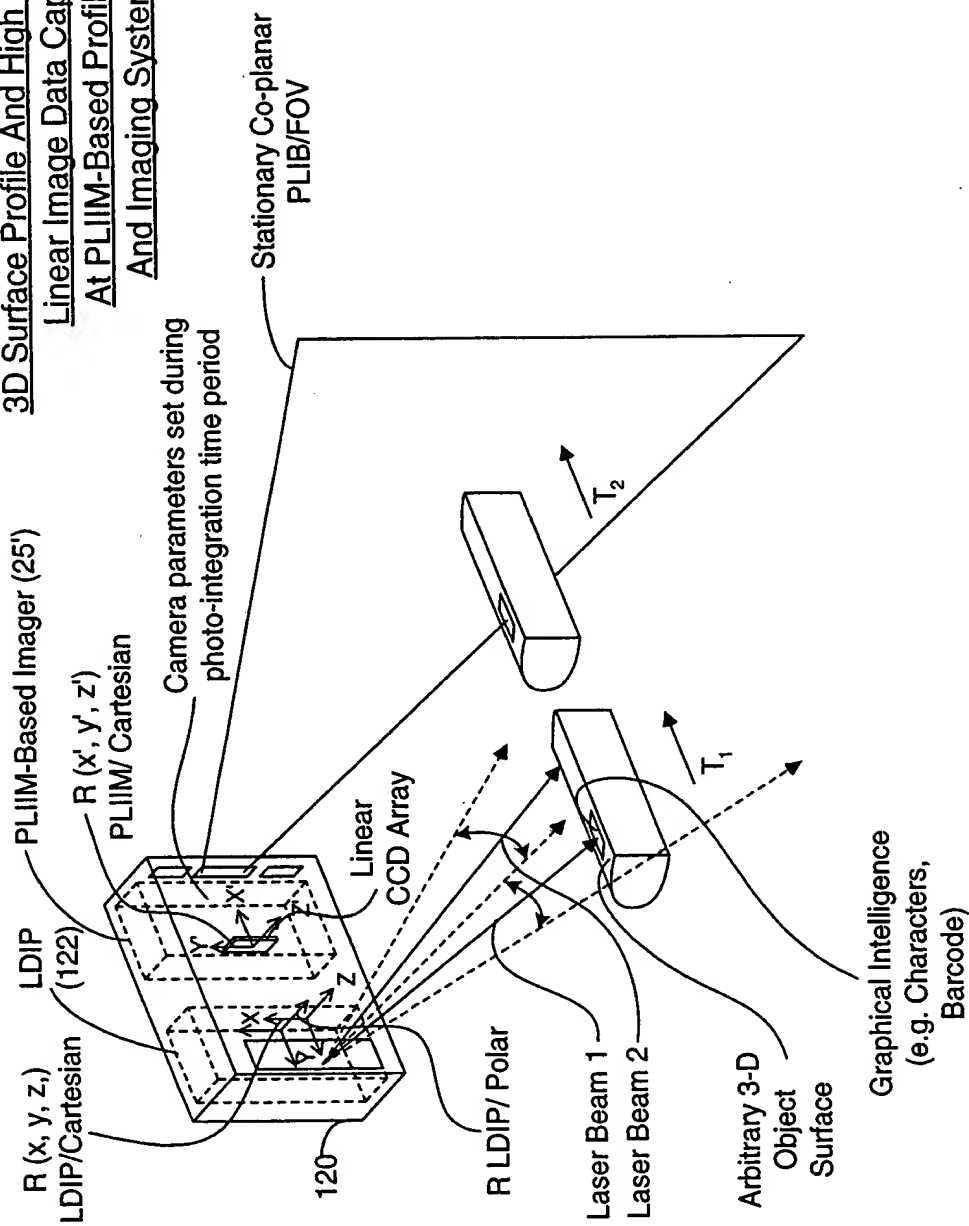


FIG. 23A

Geometrical Modelling Of Arbitrary 3-D Object Surface At Image Processing Computer

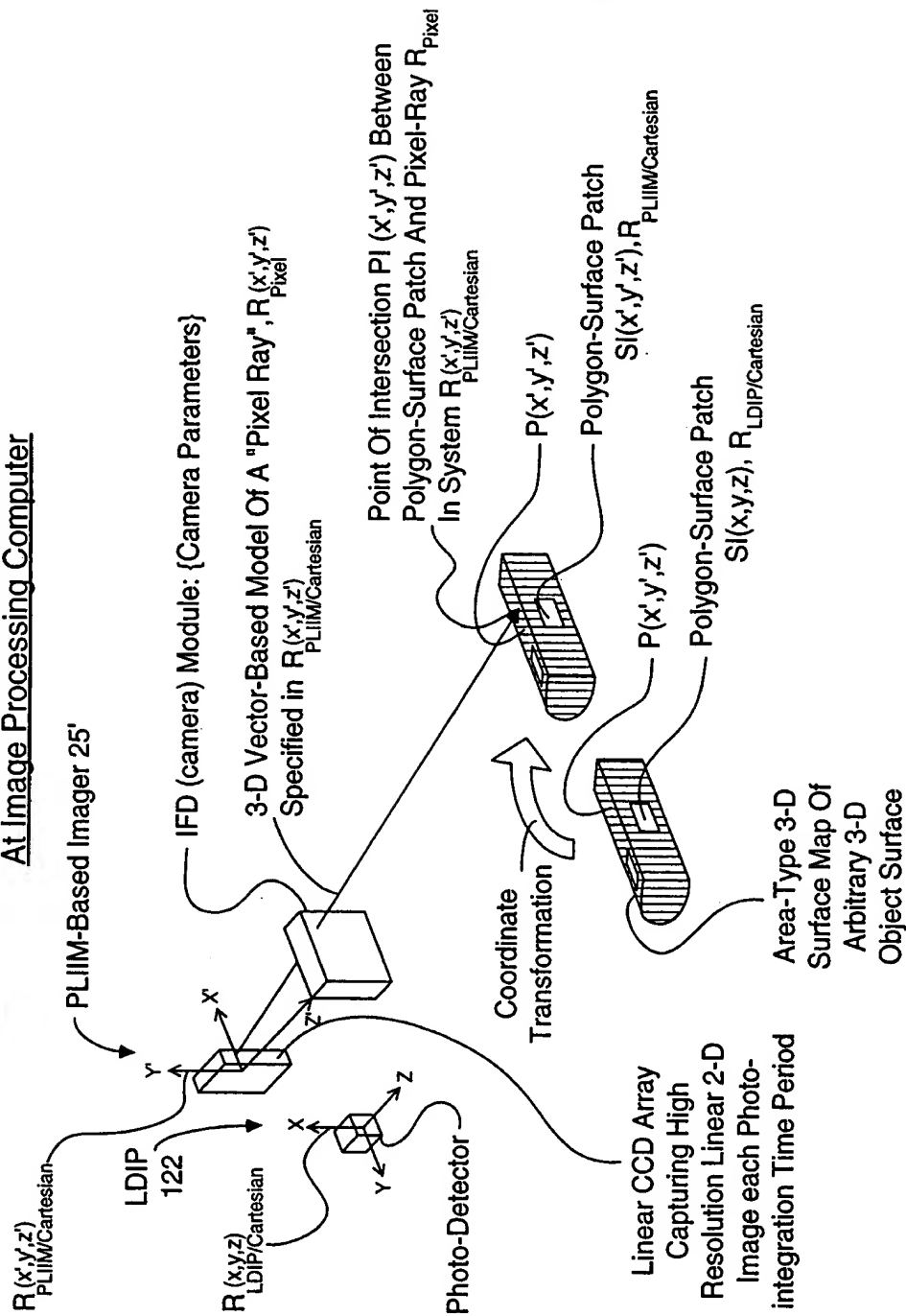


FIG. 23B

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METHOD OF AND APPARATUS FOR PERFORMING AUTOMATIC
RECOGNITION OF GRAPHICAL INTELLIGENCE CONTAINED IN 2-D
IMAGES CAPTURED FROM ARBITRARY 3-D OBJECT SURFACES

STEP 1: At the unitary PLIIM-based object imaging and profiling system, use the laser doppler imaging and profiling (LDIP) subsystem employed therein to (i) consecutively capture a series of linear 3-D surface profile maps on a targeted arbitrary (e.g. non-planar or planar) 3-D object surface bearing forms of graphical intelligence and (ii) measure the velocity of the arbitrary 3-D object surface, wherein the polar coordinates of each point in the captured linear 3-D surface profile map are specified in a local polar coordinate system $R_{LDIP/polar}$, symbolically embedded within the LDIP subsystem.

A

STEP 2: At the unitary PLIIM-based object imaging and profiling system, use coordinate transforms to automatically convert the polar coordinates of each point $p(\alpha, R)$ in the captured linear 3-D surface profile map into x, y, z Cartesian coordinates specified as $p(x, y, z)$ in a local Cartesian coordinate system $R_{LDIP/Cartesian}$, symbolically embedded within the LDIP subsystem.

B

STEP 3: At the unitary PLIIM-based object imaging and profiling system, use the PLIIM-based imager employed therein to consecutively capture high-resolution linear 2-D images of the arbitrary 3-D object surface bearing forms of graphical intelligence (e.g. symbol character strings), wherein (i) the x', y' coordinates of each pixel in each said captured high-resolution linear 2-D image is specified in local Cartesian coordinate system $R_{PLIIM/Cartesian}$ symbolically embedded within the PLIIM-based imager, and (ii) the intensity value of the pixel $I(x', y')$ is associated with the x', y' Cartesian coordinates of the image detection element in the linear image detection array at which the pixel is detected, and (iii) wherein also the planar laser illumination beam (PLIB) of the PLIIM-based imager is spaced from the amplitude modulated (AM) laser scanning beam of the LDIP subsystem is about D centimeters.

C

A

FIG. 23C1

FIG. 23C1

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A

STEP 4: At the unitary PLIIM-based object imaging and profiling system, capture and buffer the camera (IFD) parameters used to form and detect each linear high-resolution 2-D image captured during the corresponding photo-integration time period ΔT_K , by the PLIIM-based imager.

STEP 5: At the end of each photo-integration time period ΔT_K , use the unitary PLIIM-based object imaging and profiling system to transmit the following information elements to the Image Processing Computer for data storage and subsequent information processing:

(1) the converted coordinates x, y, z , of each point in the linear 3-D surface profile map of the arbitrary 3-D object surface captured during photo-integration time period ΔT_K ;

(2) the measured velocity(ies) of the arbitrary 3-D object surface during photo-integration time period ΔT_K ;

(3) the x', y' coordinates and intensity value $I(x', y')$ of each pixel in each high-resolution linear 2-D image captured during photo-integration time period ΔT_K and specified in the local Cartesian coordinate system $R_{PLIIM/Cartesian}$; and

(4) the captured camera (IFD) parameters used to form and detect each linear high-resolution 2-D image captured during the photo-integration time period ΔT_K

STEP 6: At the Image Processing Computer, receive the data elements transmitted from the PLIIM-based profiling and imaging system during Step 5, buffer data elements (1) and (2) in a first FIFO buffer memory structure, and data elements (3) and (4) in a second FIFO buffer memory structure.

B

FIG. 23C2

237/385
C

STEP 11: At the Image Processing Computer, for each laser beam ray (producing one of the pixels in said selected linear 2-D image), (i) determine which polygon surface patch $s_i(x, y, z)$ the pixel ray intersects, (ii) compute the x, y, z coordinates of the point of intersection (POI) between the pixel ray and the polygon surface patch represented in Cartesian coordinate reference system $R_{PLIIM/Cartesian}$, and (iii) designate the computed set of points of intersection as $\{p_i(x, y, z)\}$.

K

STEP 12: At the Image Processing Computer, for each laser beam ray passing through a determined polygon surface patch $s(x', y', z')$ at a computed point of intersection $p_i(x, y, z)$, assign the intensity value $I(x', y')$ of the pixel ray to the x', y', z' coordinates of the point of intersection, thereby producing a linear high-resolution 3-D image comprising a 2-D array of pixels, each said pixel pixel having as its attributes (i) an Intensity value $I(x', y', z')$ and (ii) coordinates x', y', z' specified in the local Cartesian coordinate reference system $R_{PLIIM/Cartesian}$.

L

STEP 13: Put the computed linear high-resolution 3-D image in a third FIFO memory storage structure in the image processing computer.

M

STEP 14: Repeat Steps 1-6 to update the first and second FIFO data queues maintained in the image processing computer, and Steps 7-13 to update the consecutively computed linear high-resolution 3-D image stored in the third FIFO memory storage structure.

N

STEP 15: Assemble in an image buffer in the image processing computer, a set of consecutively computed linear high-resolution 3-D images retrieved from the third FIFO data storage device so as to construct an "area-type" high-resolution 3-D image of said arbitrary 3-D object surface.

O

D

FIG. 23C4

FIG. 23C4

(D)

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STEP 16: At the Image Processing Computer, map the intensity value $I(x', y', z')$ of each pixel in the computed area-type 3-D image onto the x', y', z' coordinates of the points on a uniformly-spaced apart "grid" positioned perpendicular to the optical axis of the camera subsystem (i.e. to model the 2-D planar substrate on which the forms of graphical intelligence was originally rendered), wherein said mapping process involves using an intensity weighing function based on the x', y', z' coordinate values of each pixel in the area-type high-resolution 3-D image, thereby producing an area-type high-resolution 2-D image of the 2-D planar substrate surface bearing said forms of graphical intelligence (e.g. symbol character strings).

P

STEP 17: At the Image Processing Computer, use said OCR algorithm to perform automated recognition of graphical intelligence contained in said area-type high-resolution 2-D image of said 2-D planar substrate surface so as to recognize said graphical intelligence and generate symbolic knowledge structures representative thereof.

Q

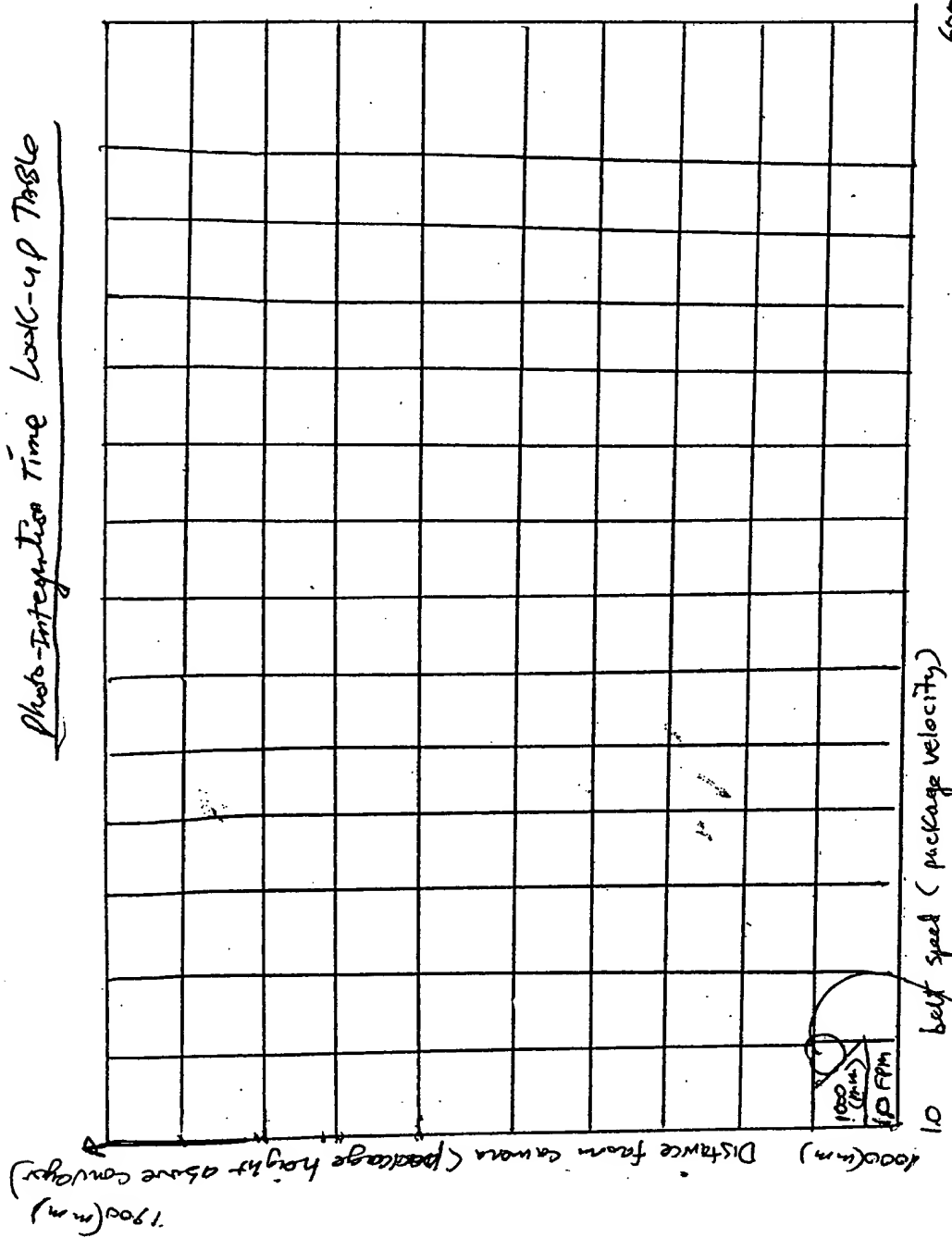
STEP 18: Repeat Steps 1-17 as often as required to recognize changes in graphical intelligence on the arbitrary moving 3-D object surface.

R

FIG. 23C5

TOP SECRET

Photo-Integration Time Look-up Table



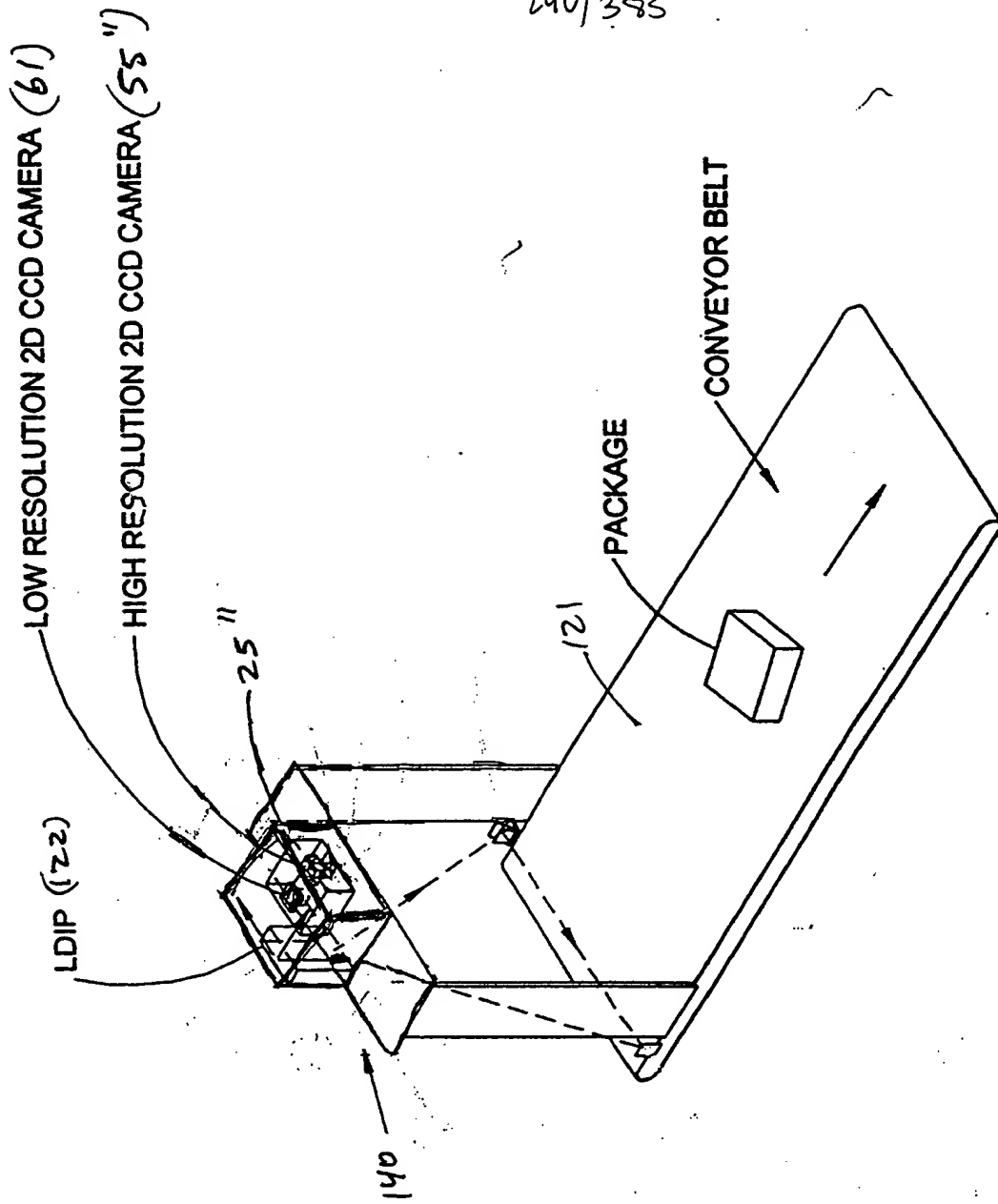
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600 feet per minute
(FPM)

FIG. 22B

Photo-Integration
Time value that
ensures square image pixels
(1:1 aspect ratio)

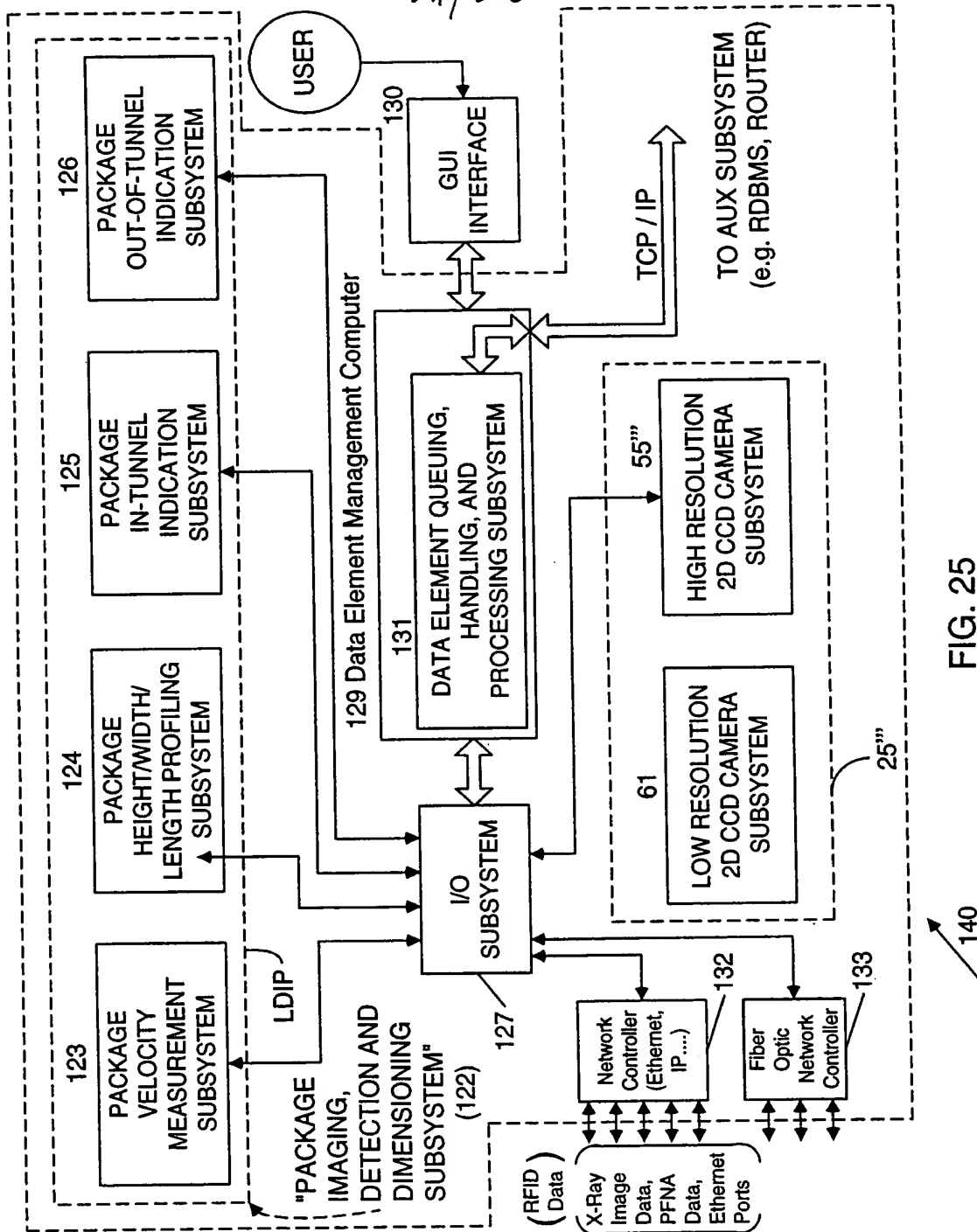
TOP SECRET



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FIG 24

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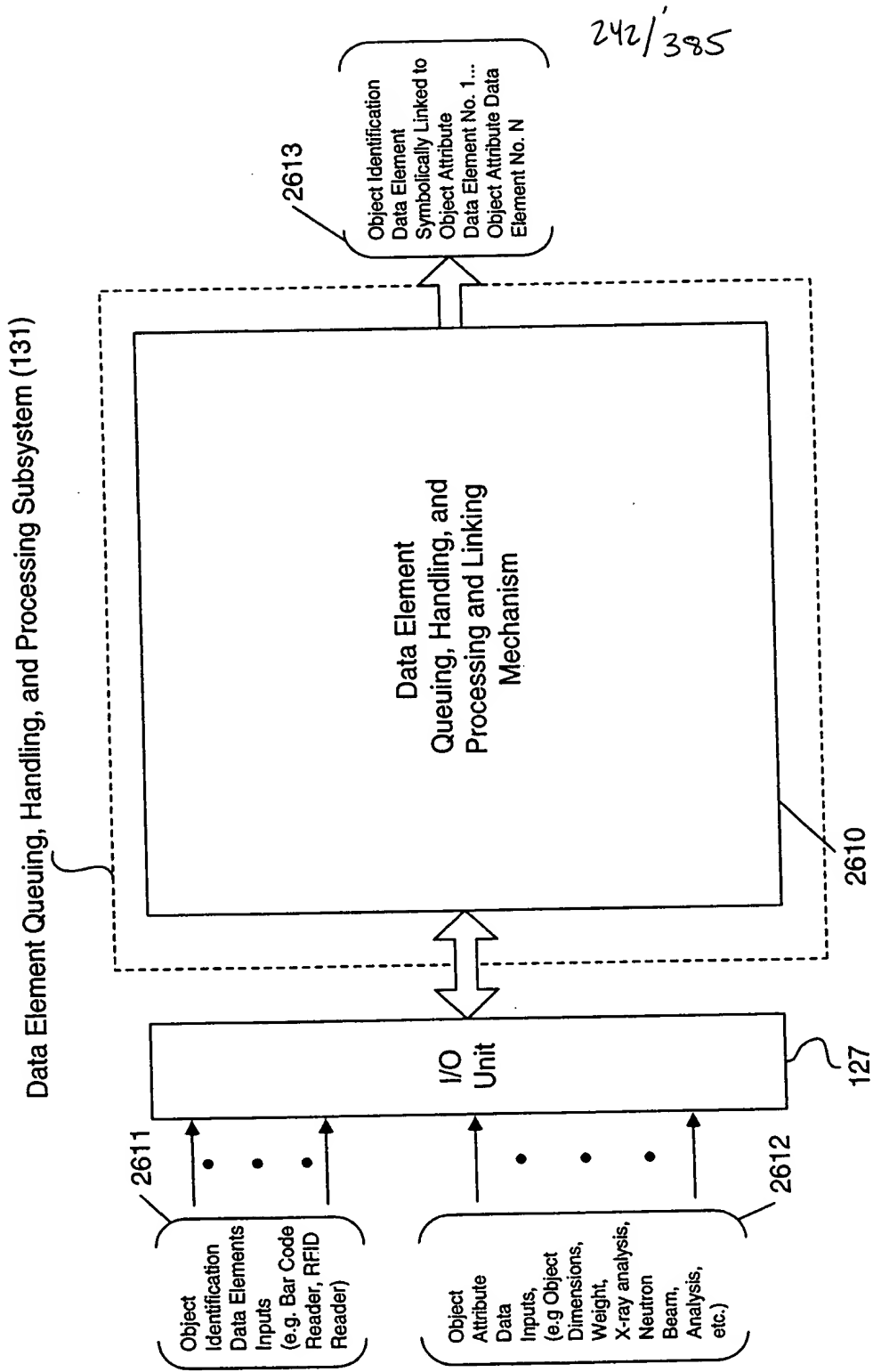
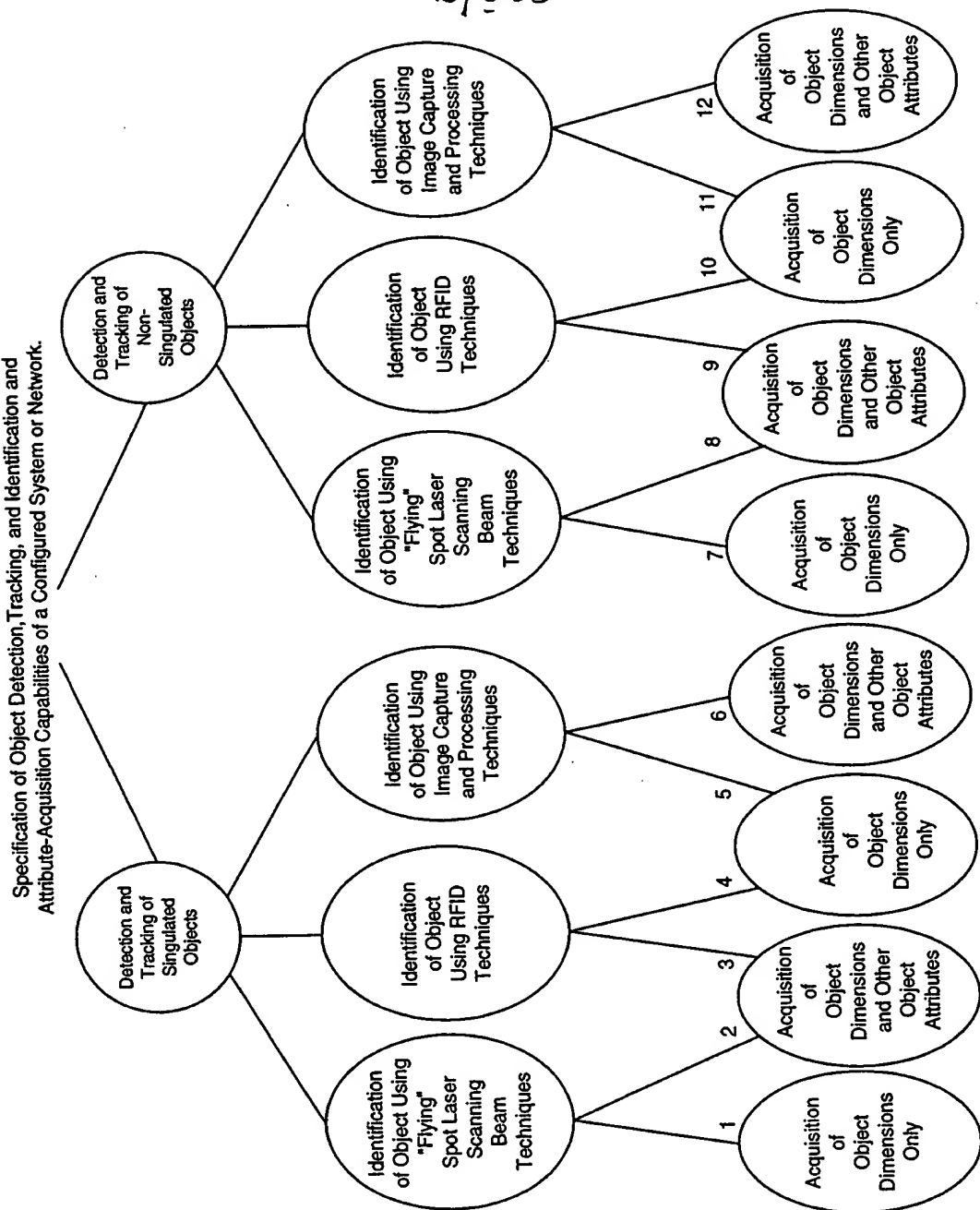


FIG. 25A

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Primary Network:
and/ or System
Functions:

A. Specification of Object
Detection and
Tracking Capability of
System

B. Specification of Object
Identification
Capability of System

C. Specification of
Object Attribute
Acquisition Capability
of System

FIG. 25B

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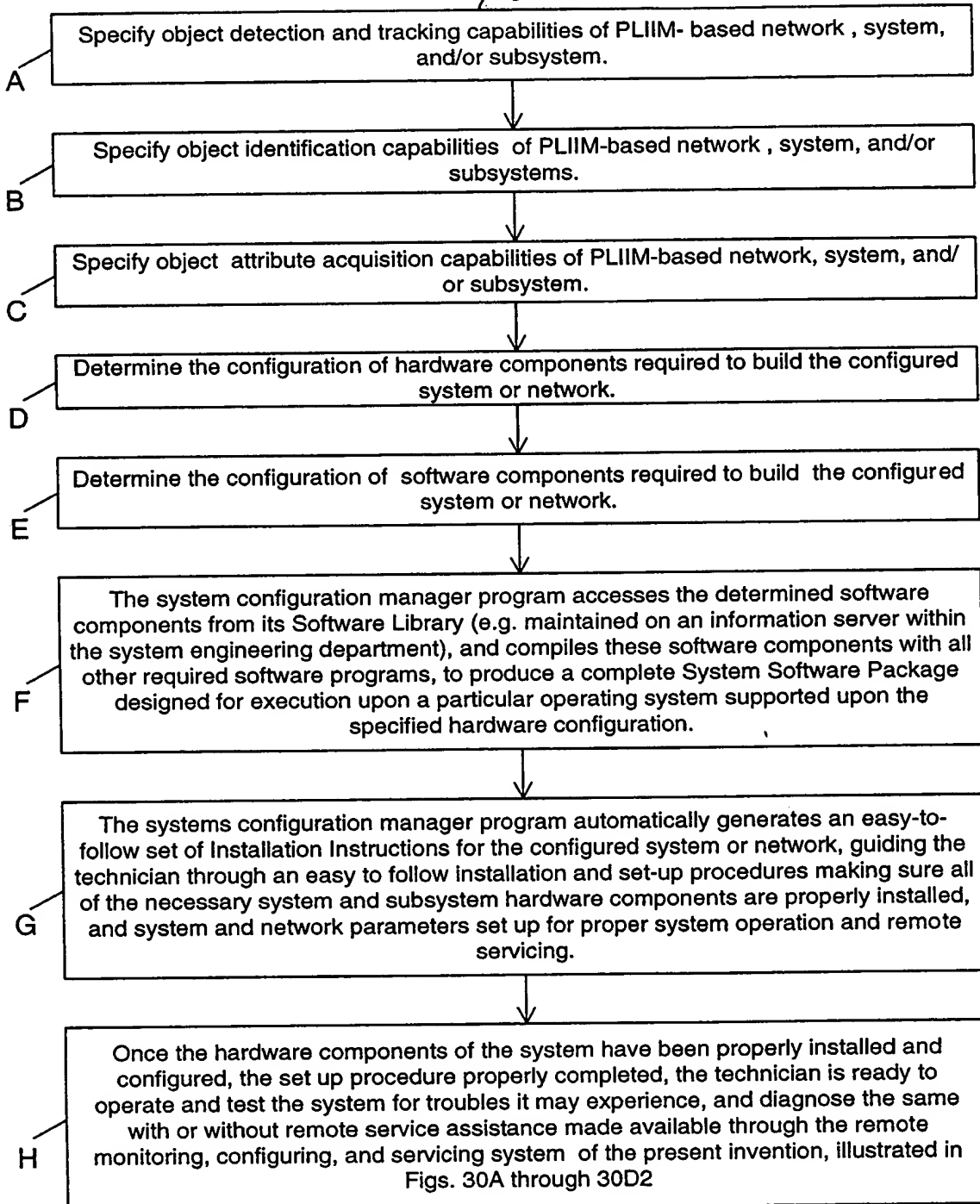


FIG. 25C

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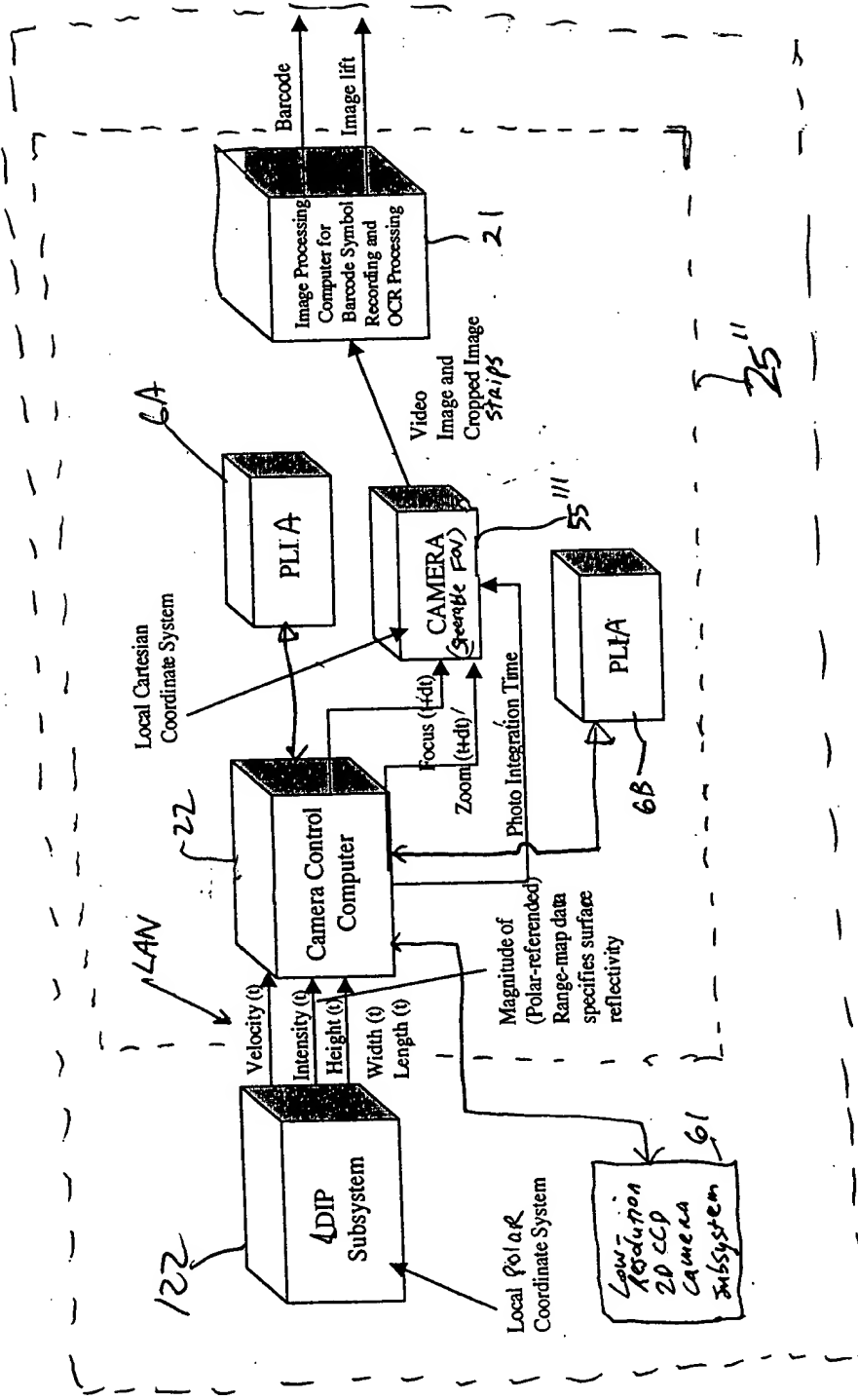


FIG. 26

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120 Top PFD unit

120 Right PFD unit

120 Left PFD unit

120 Bottom PFD unit

570 Camera Field of View

571 Dimensioned Field of View

572

576 Encoder

573

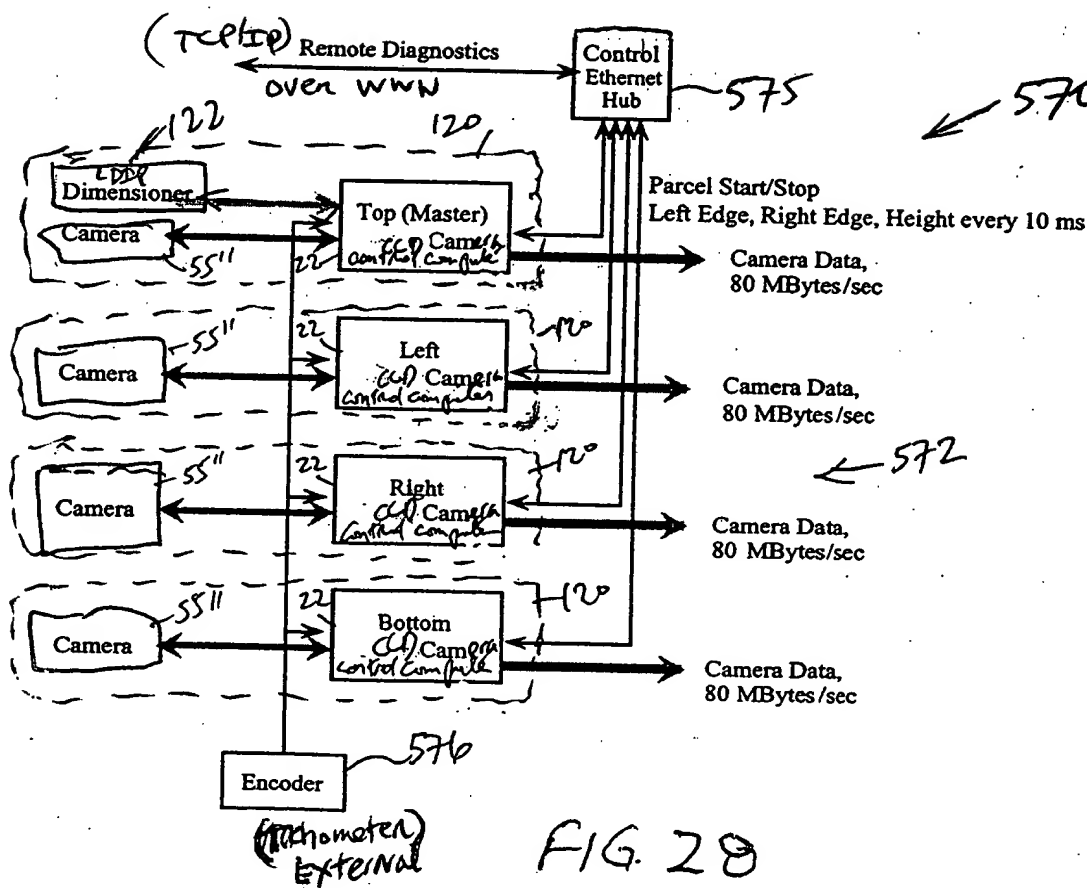
574

571A

571B

PFD: Package Identification and Dimensioning Unit

FIG. 27



FOI b6 b7C

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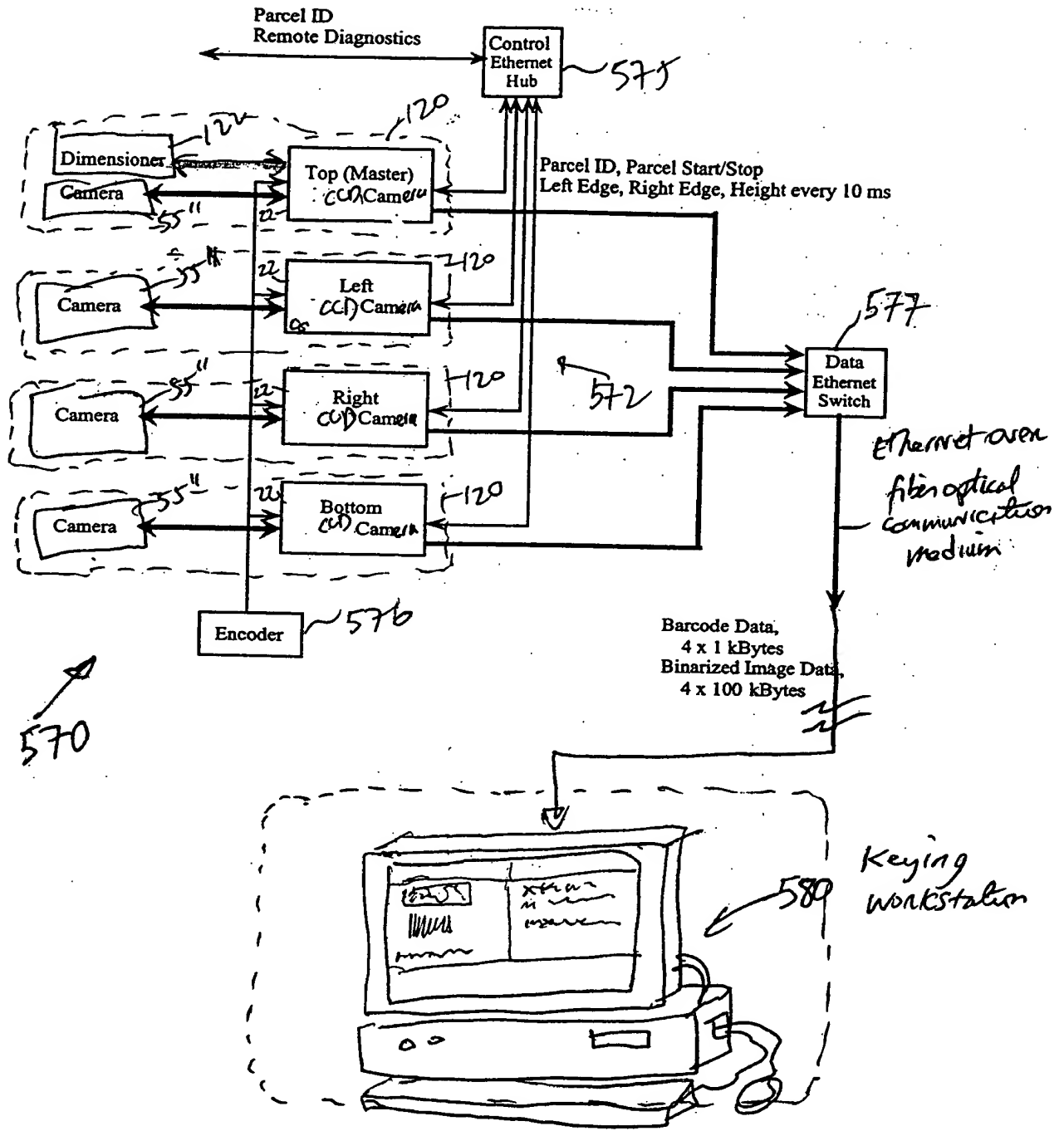


FIG. 29

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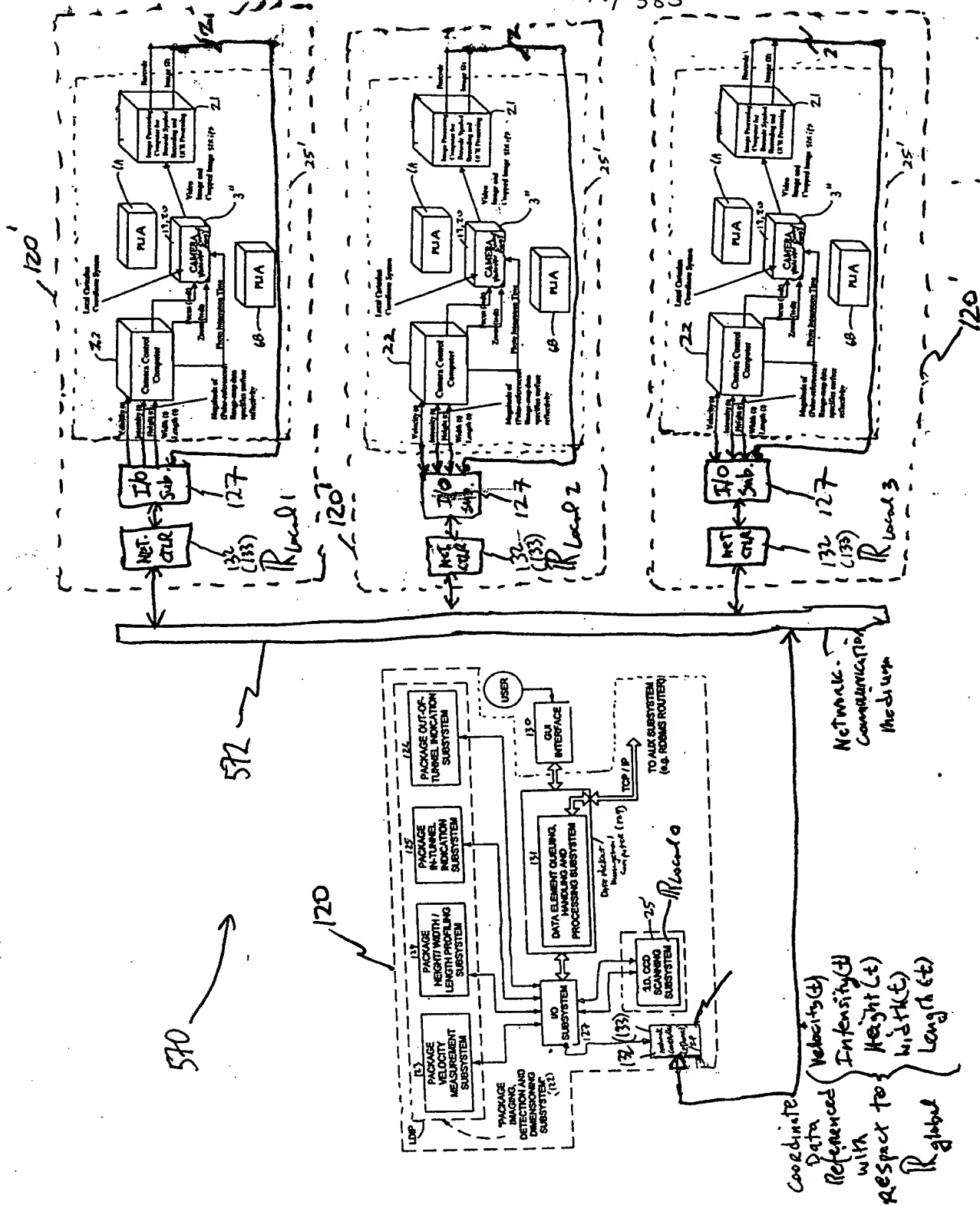


FIG 30

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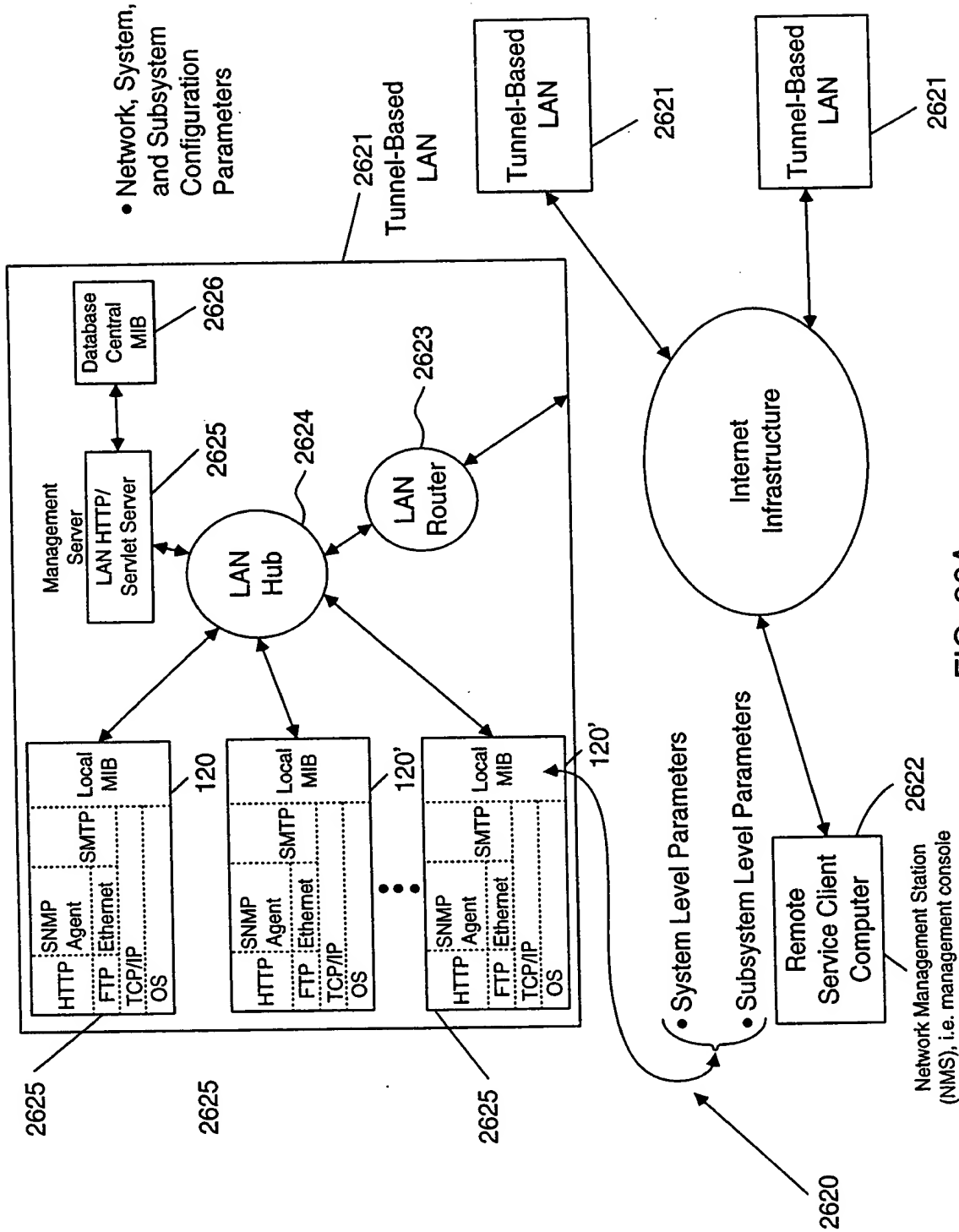


FIG. 30A

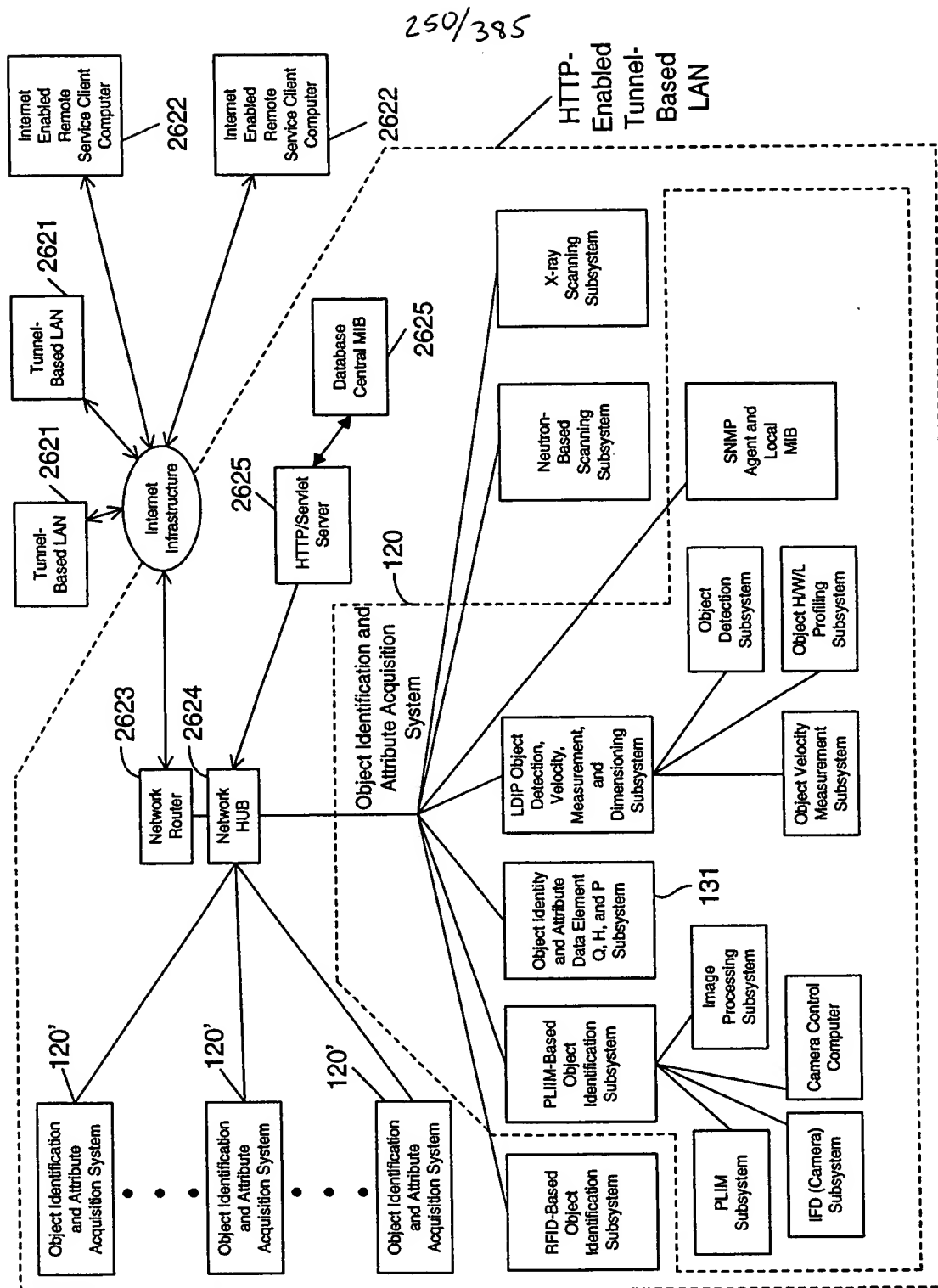


FIG. 30B

Network Configuration Parameters:

[Router IP address; no. of nodes (i.e. systems) in LAN; passwords, LAN location; name of customer facility; technical contact; phone no.; domain name; object identity codes; object attribute acquisition codes;....]

System Configuration Parameters:

[System IP Address; passwords; object identity codes; object attribute acquisition codes;....]

Monitorable and/or Configurable Parameters for Subsystems Within Each System:

- ☐ PLIM-based object identification subsystem: [object identity code; object attribute acquisition codes;....]
 - ☐ PLIM Subsystem: [VLD status; power VLD; TIM function; temp.;....]
 - ☐ IFD (Camera) Subsystem: [sensor temp;]
 - ☐ Image Processing Subsystem (Computer): [processor load history; system up time; # of frames (pgs); barcode read rate; current line rate;....]
 - ☐ Camera Contact Subsystem (Computer): [number of frames dropped; number of focused zoom commands; number and kinds of motor control errors;....]
- ☐ RFID-based object identification subsystem: [....]
- ☐ Object identity and attribute data element queuing, handling and processing subsystem: [....]
- ☐ LDIP object identification, velocity-measurement, and dimensioning subsystem: [....]
 - ☐ Object velocity measurement subsystem: [polygon RPM; polygon laser output X; channel X drift; channel X noise; trigger error events; instant lock reference drift; temperature]
 - ☐ Object H/W/L profiling subsystem
 - ☐ Object detection subsystem: [non- singulation/ singulation code;....]
- ☐ X-ray scanning subsystem: [....]
- ☐ Neutron-beam scanning subsystem: [....]

These subsystems generate object identity parameters

This system links object attribute data element parameters (i.e. object identity data element) to corresponding object identity parameters (i.e. object attribute data element)

These subsystems generate object attribute parameters

FIG. 30C

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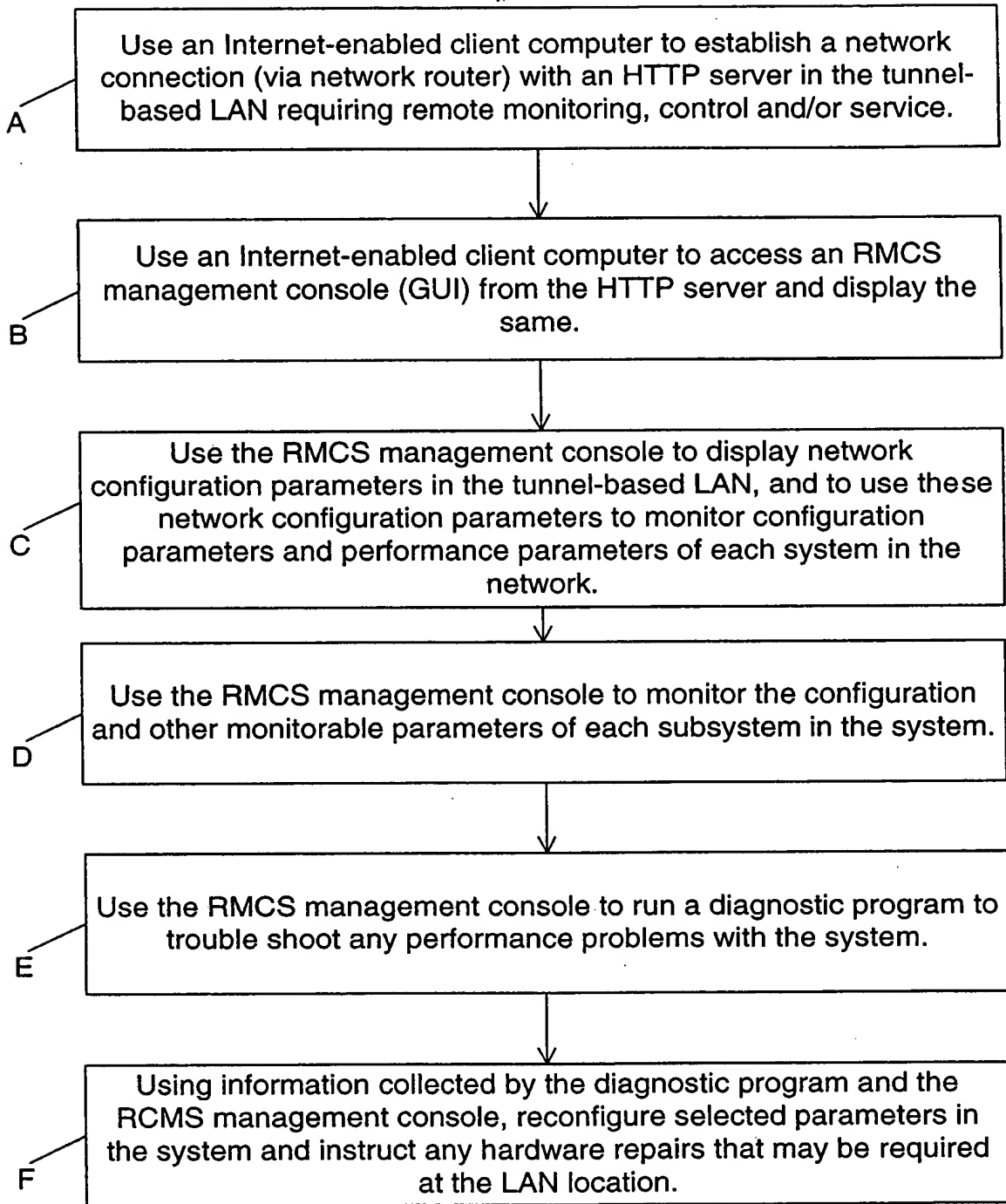


FIG. 30D1

253/385 (A)

G

Use the RMCS management console to rerun diagnostic programs on troubled systems and subsystems in the LAN after parameter reconfiguration and/or hardware repair at the LAN location, so as to test the performance of such systems and subsystems and the overall tunnel based LAN.

H

Use the RMCS management console to monitor parameters of the system and subsystems in the tunnel based LAN, from time to time, to determine whether or not the system and/or network tunnel is required.

I

Use the RMCS management console to record all monitored parameter records and result of diagnostic programs in a customer service database for future reference, and access during subsequent remote service calls over the Internet.

FIG. 30D2

CCD Camera-Based Tunnel System
Employing Package Coordinate Data
Driven Method of Automatic Camera
Zoom and Focus Control

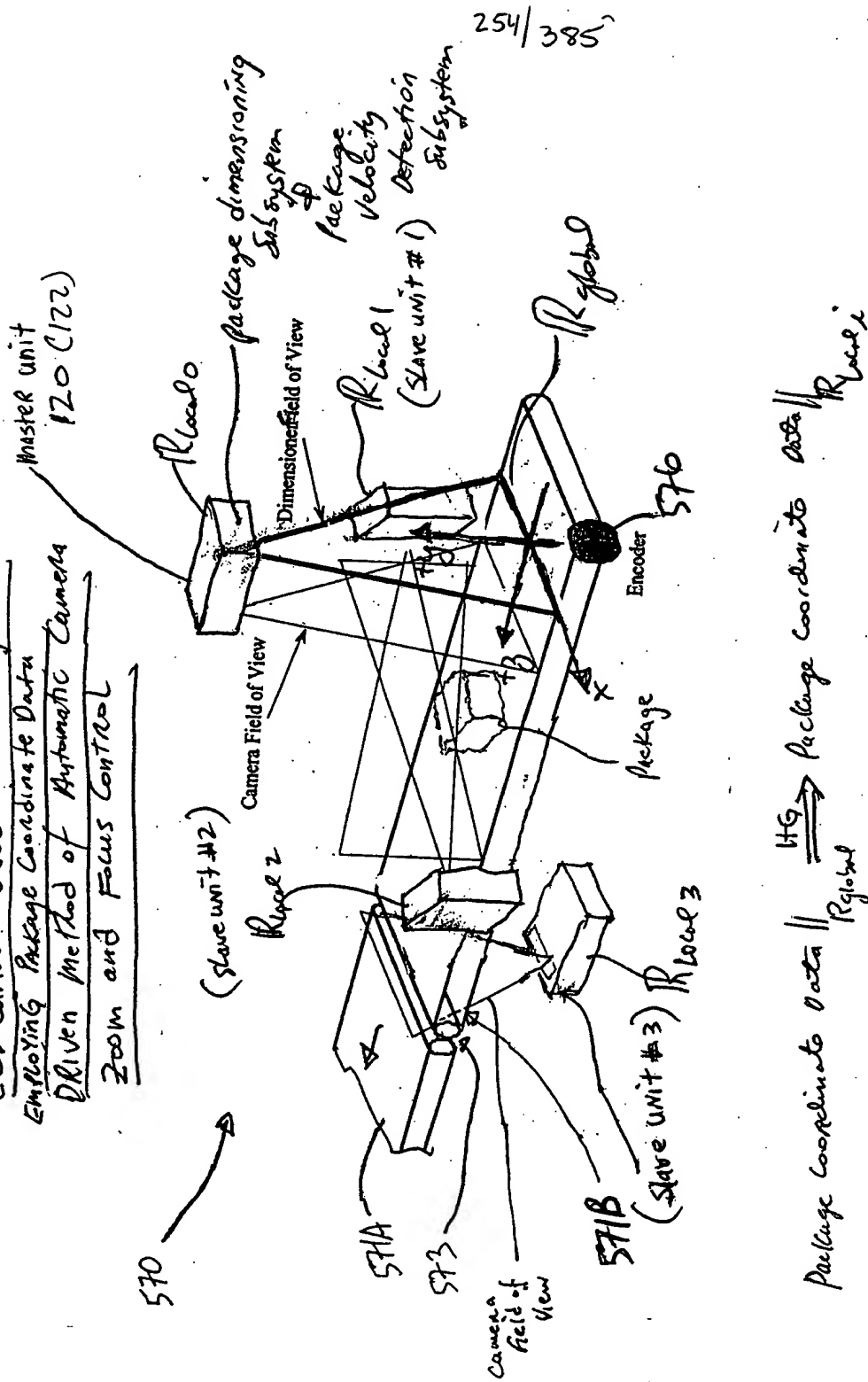


FIG. 31

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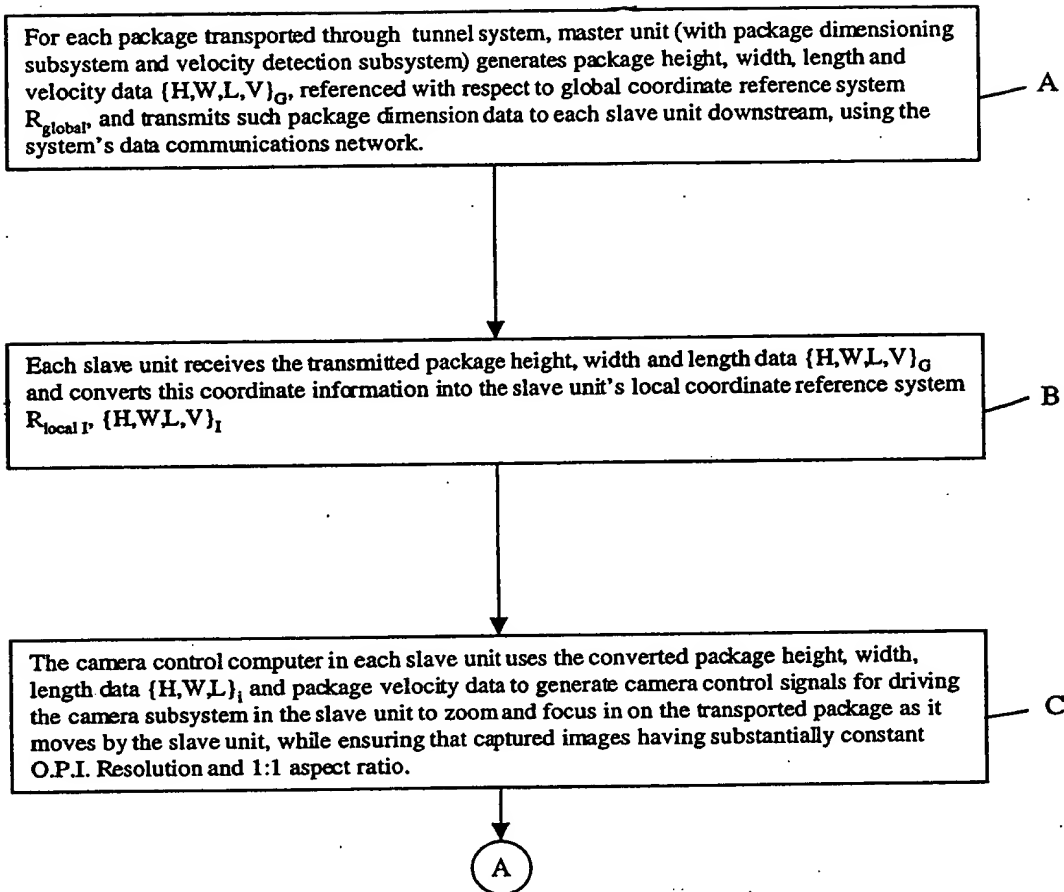


FIG. 32A

FIG. 31A

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A

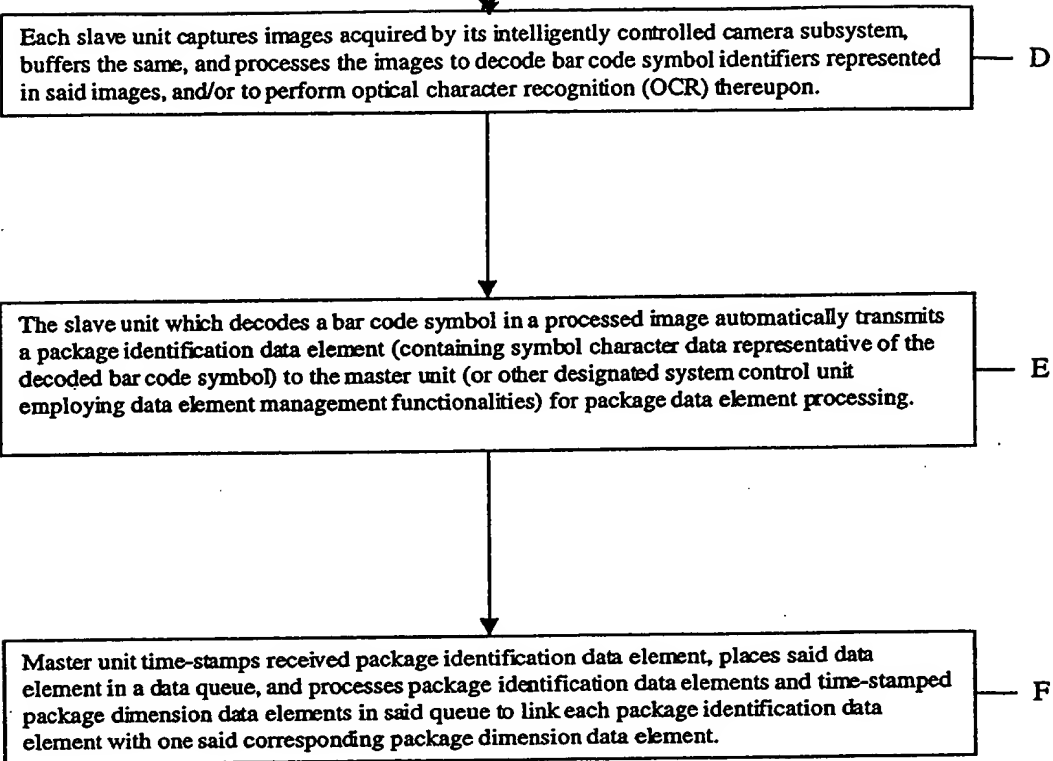


FIG. 32B

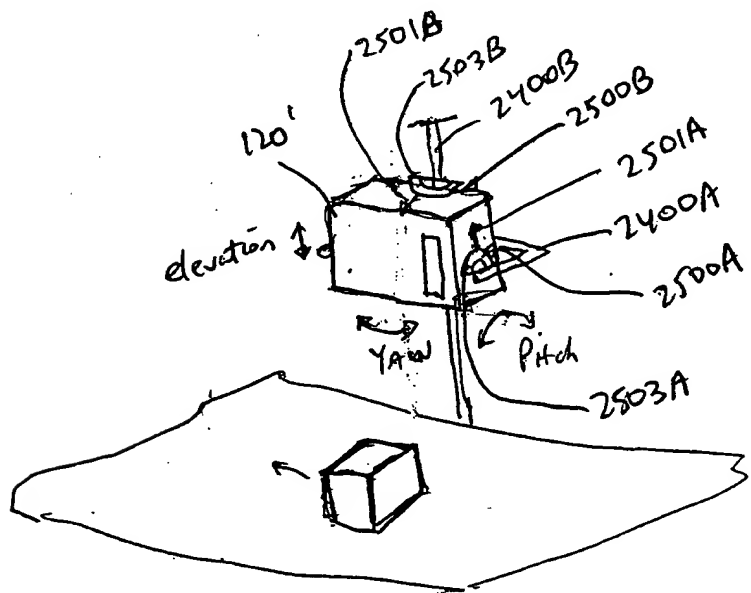
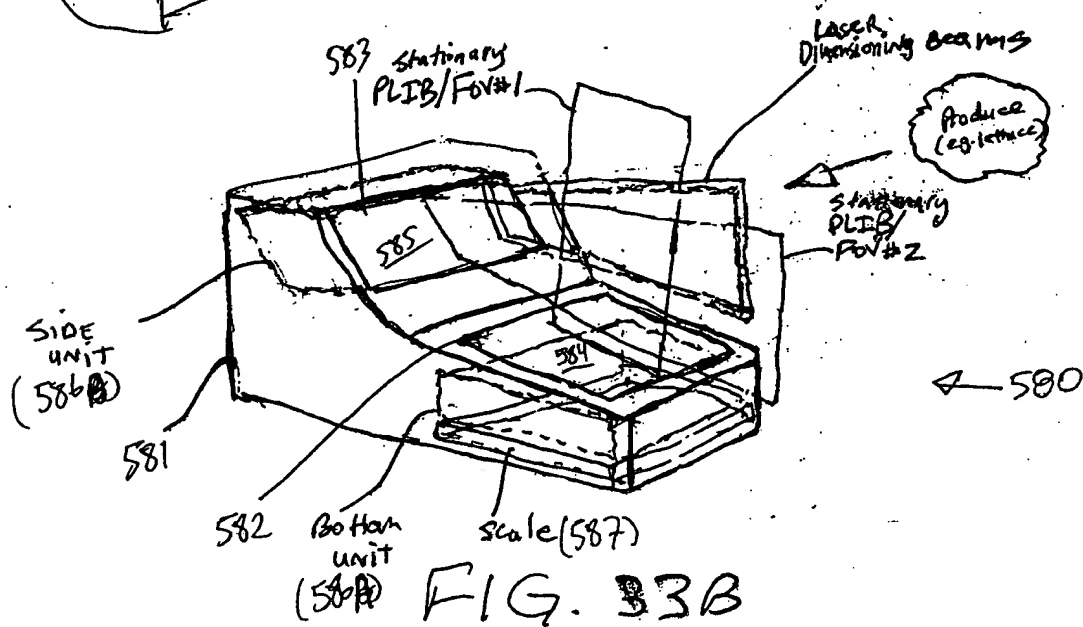
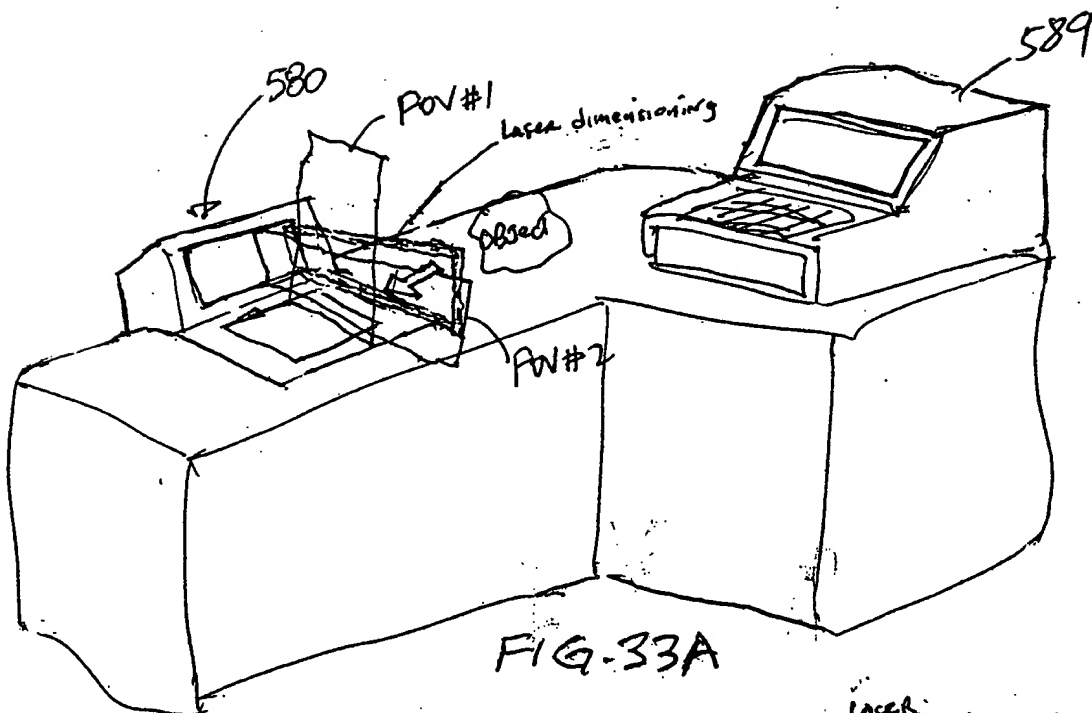


FIG. 31A

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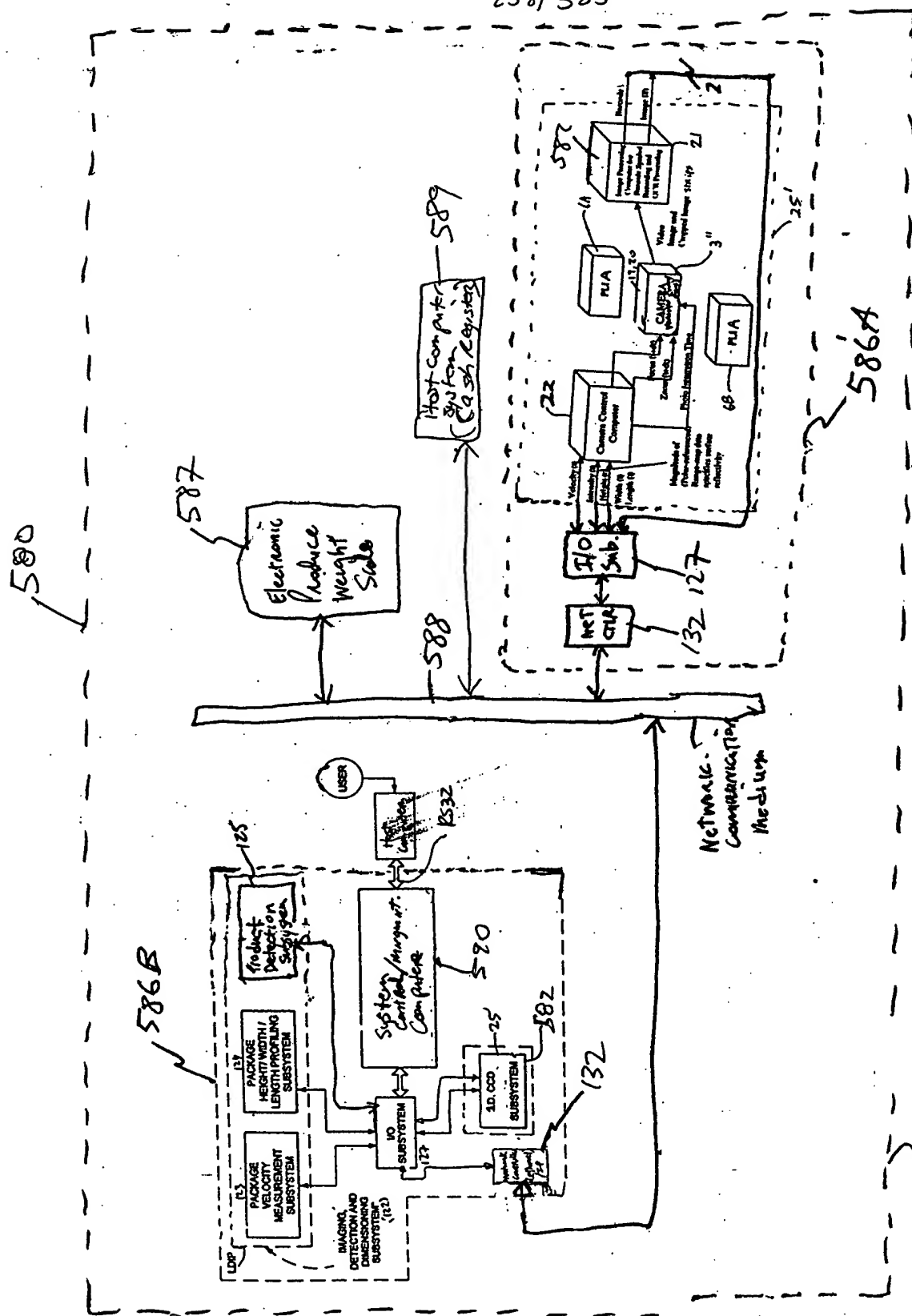


FIG. 33C

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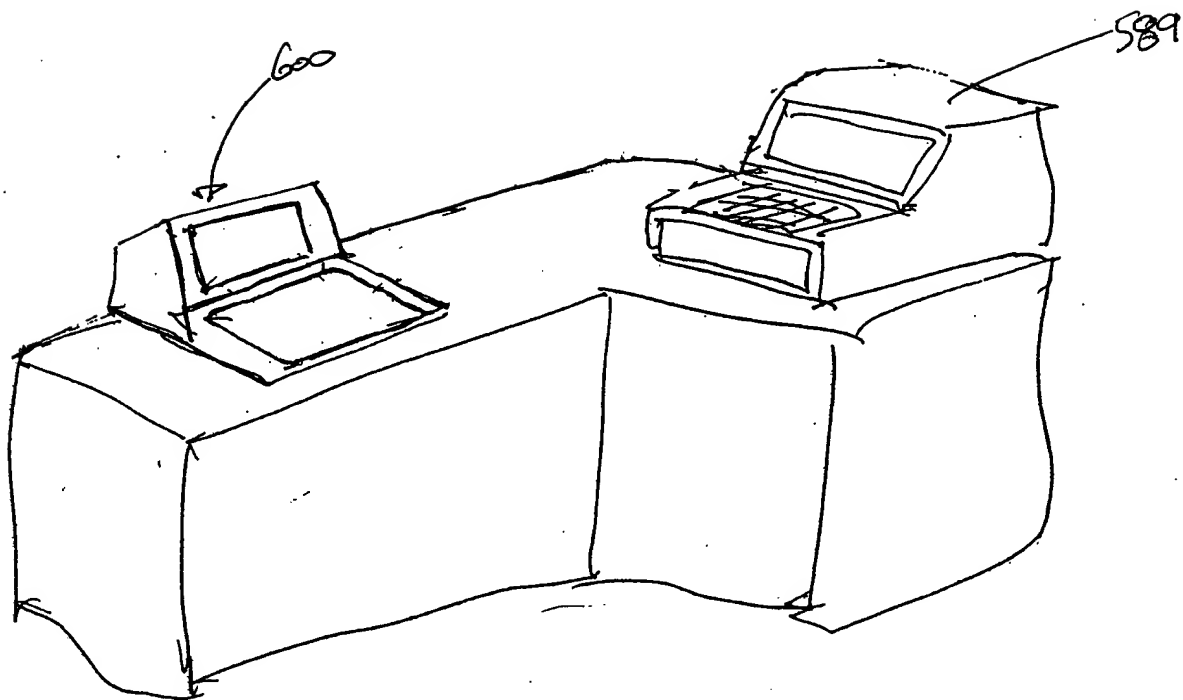


FIG. 34A

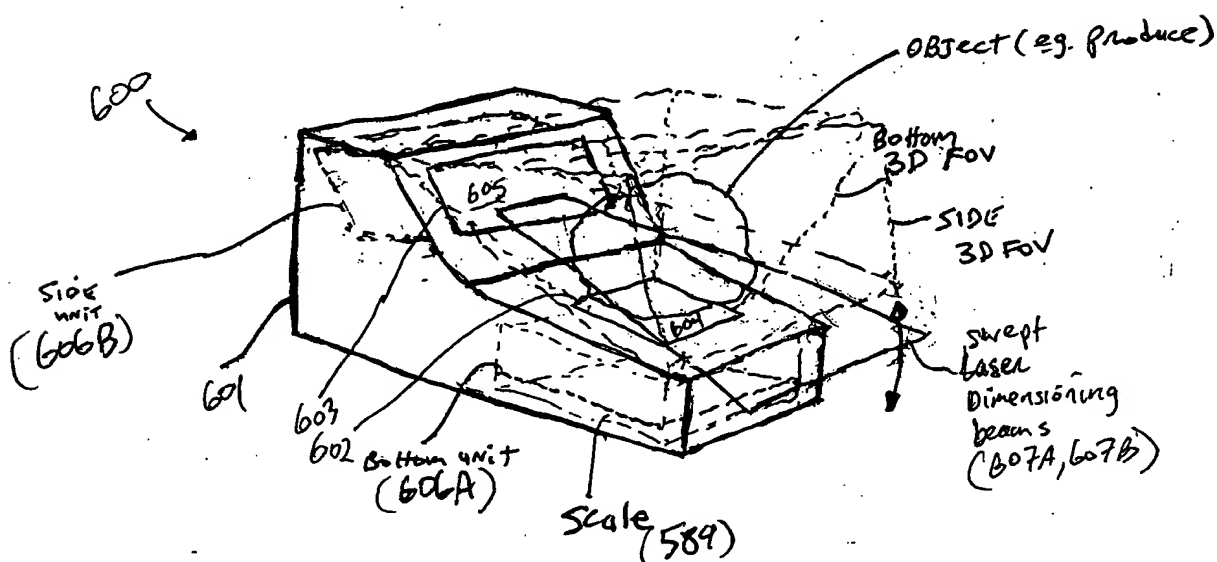
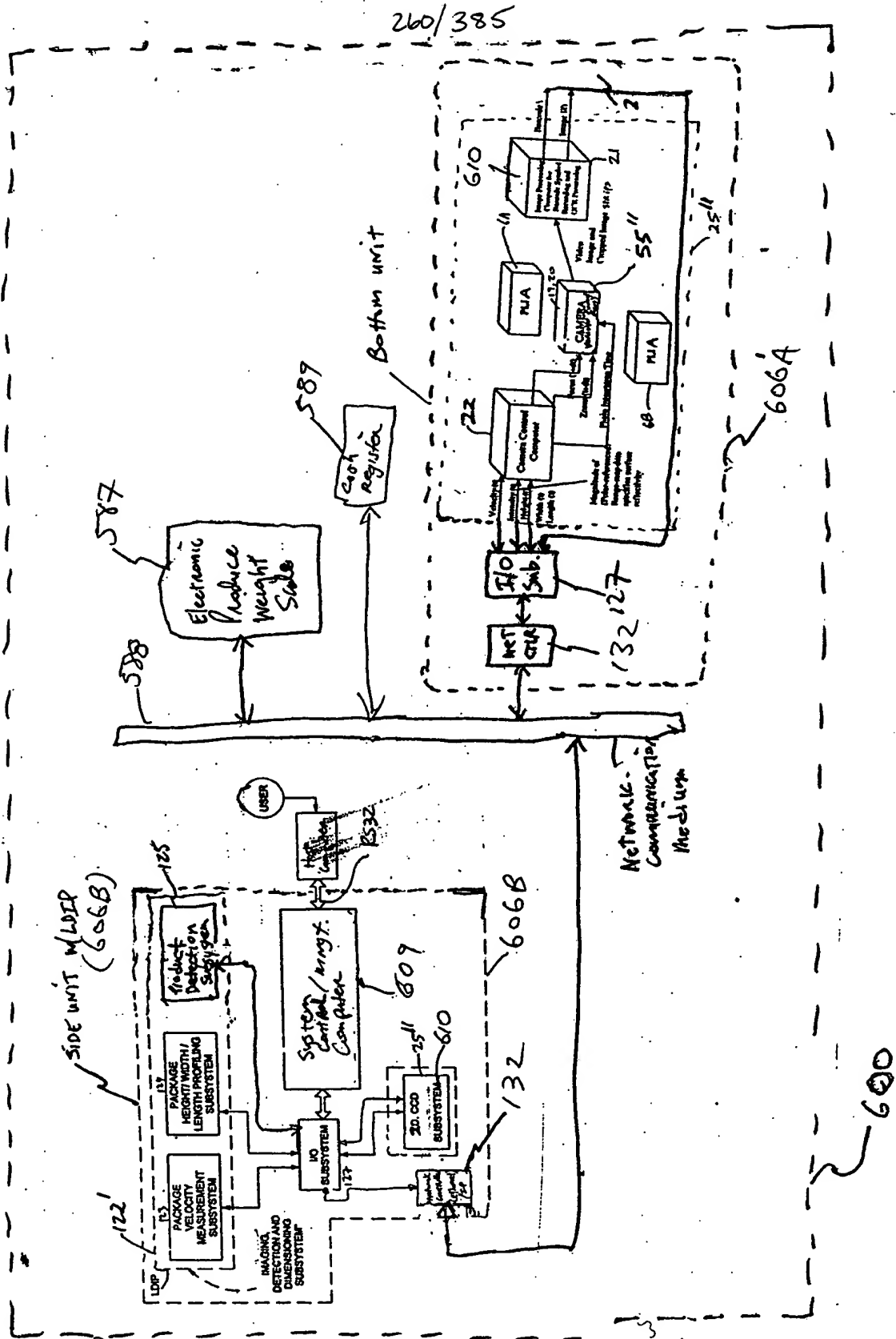
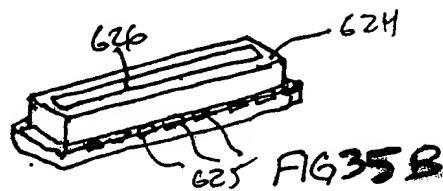
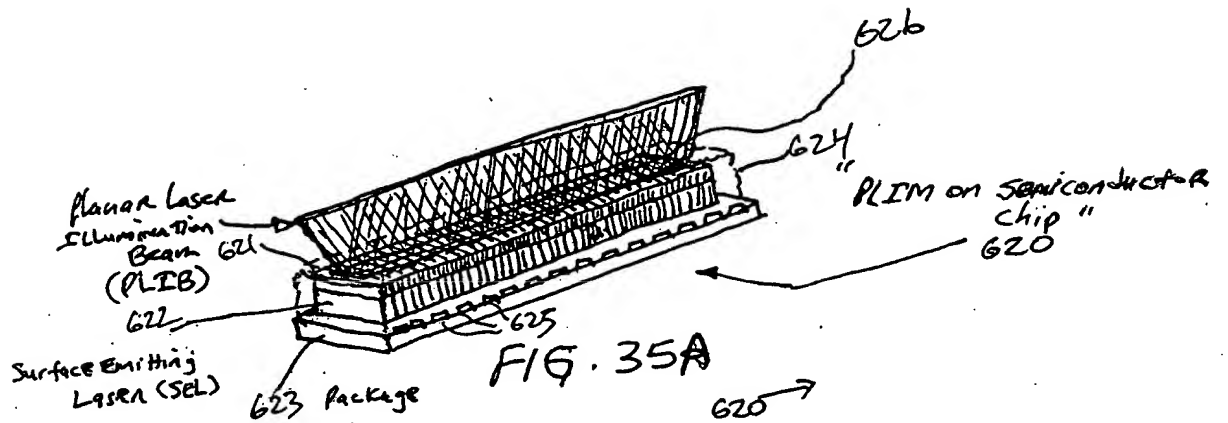


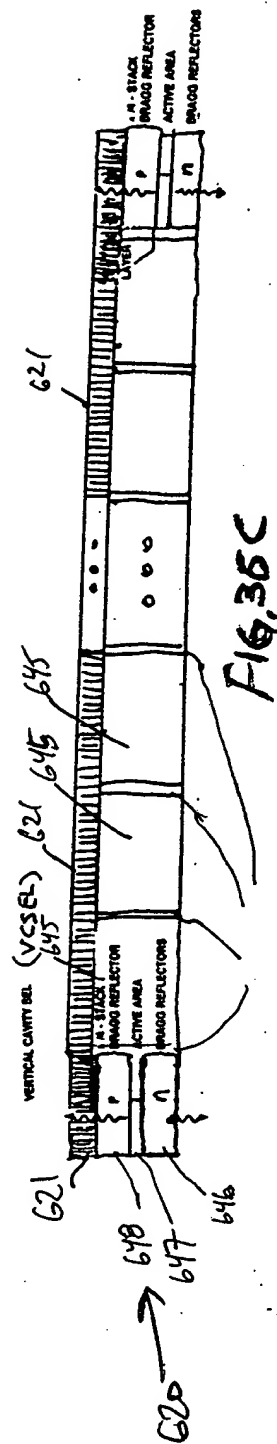
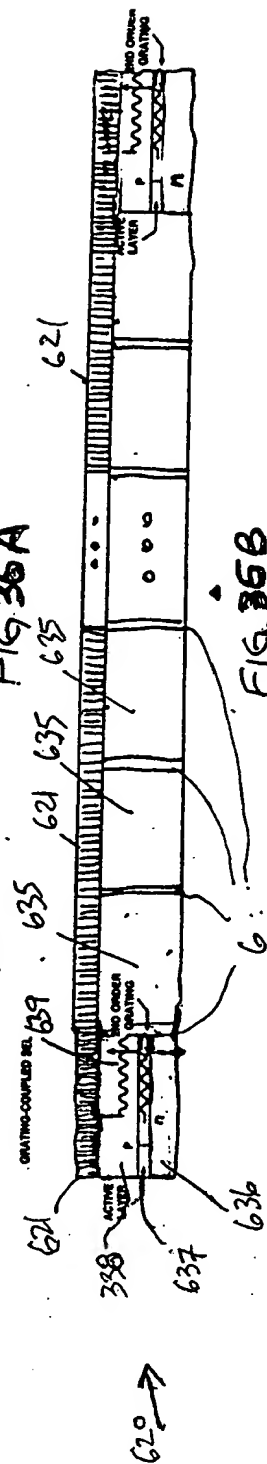
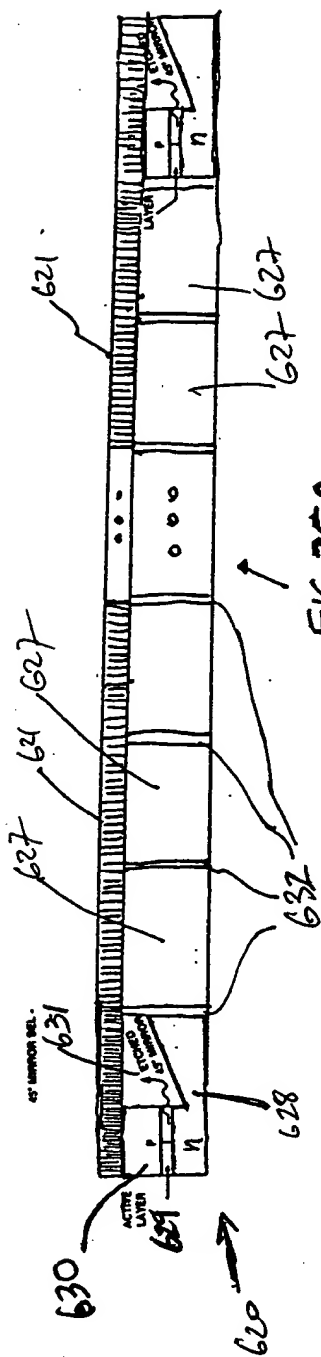
FIG. 34B



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00000585 112404



2 63/385

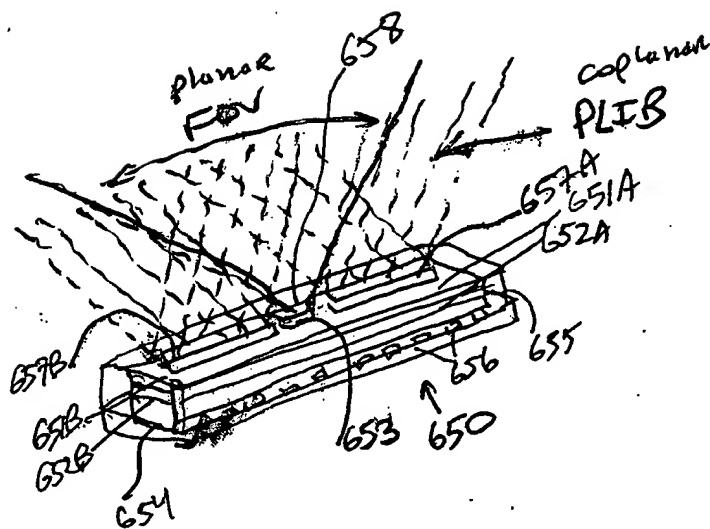


FIG. 37

FOOT-58506660

00000585 142104

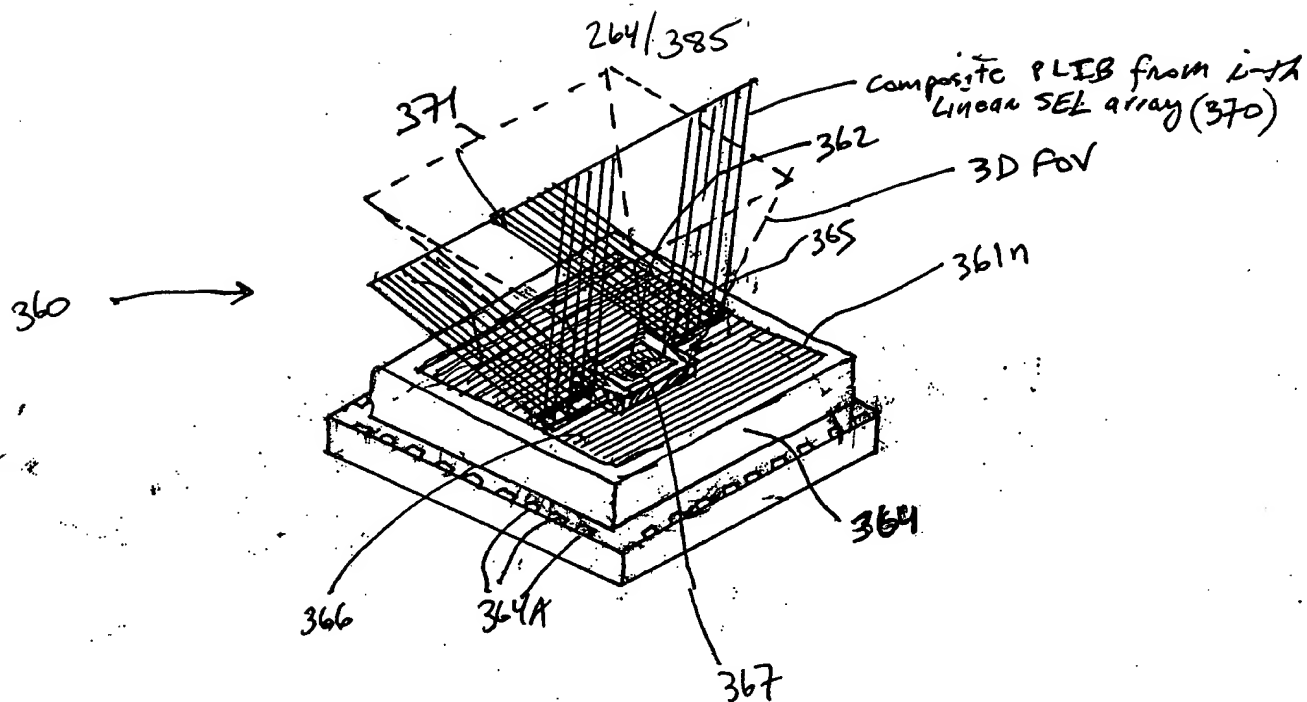


FIG. 38A

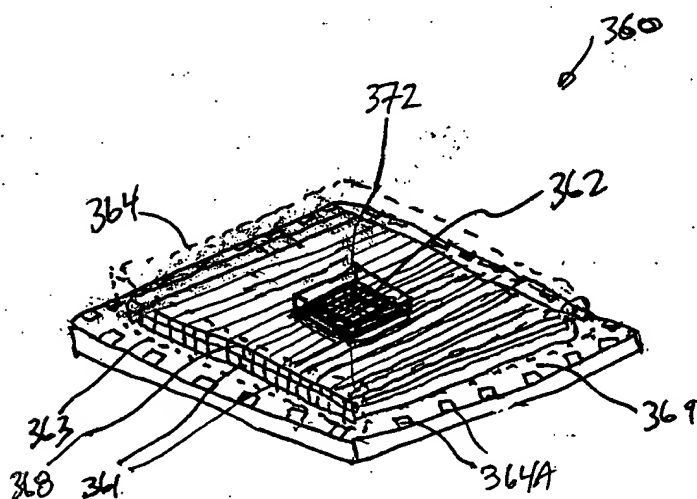


FIG. 38B

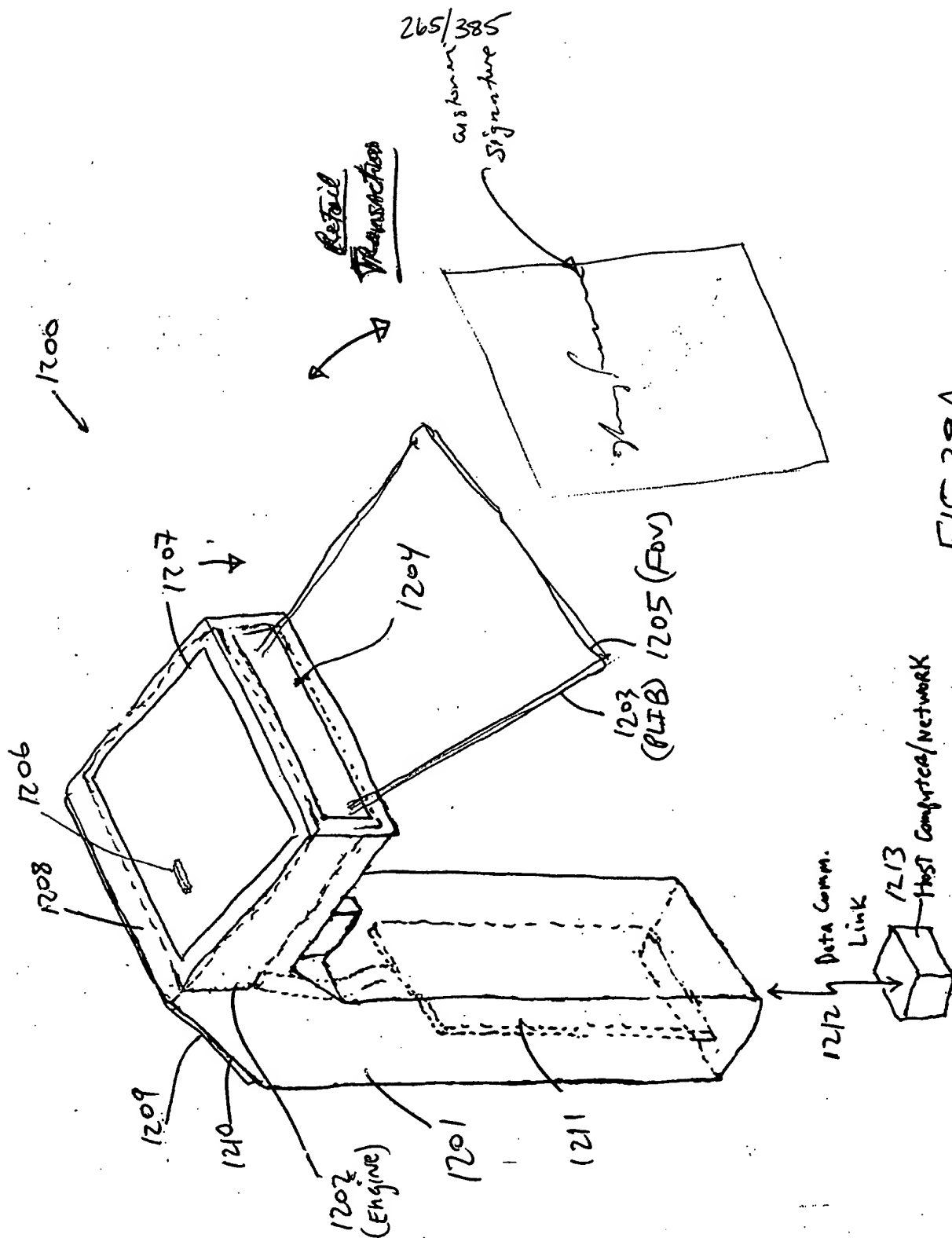
[illegible]

FIG. 39A

00000585 112101
FOI b7E b7C b7D

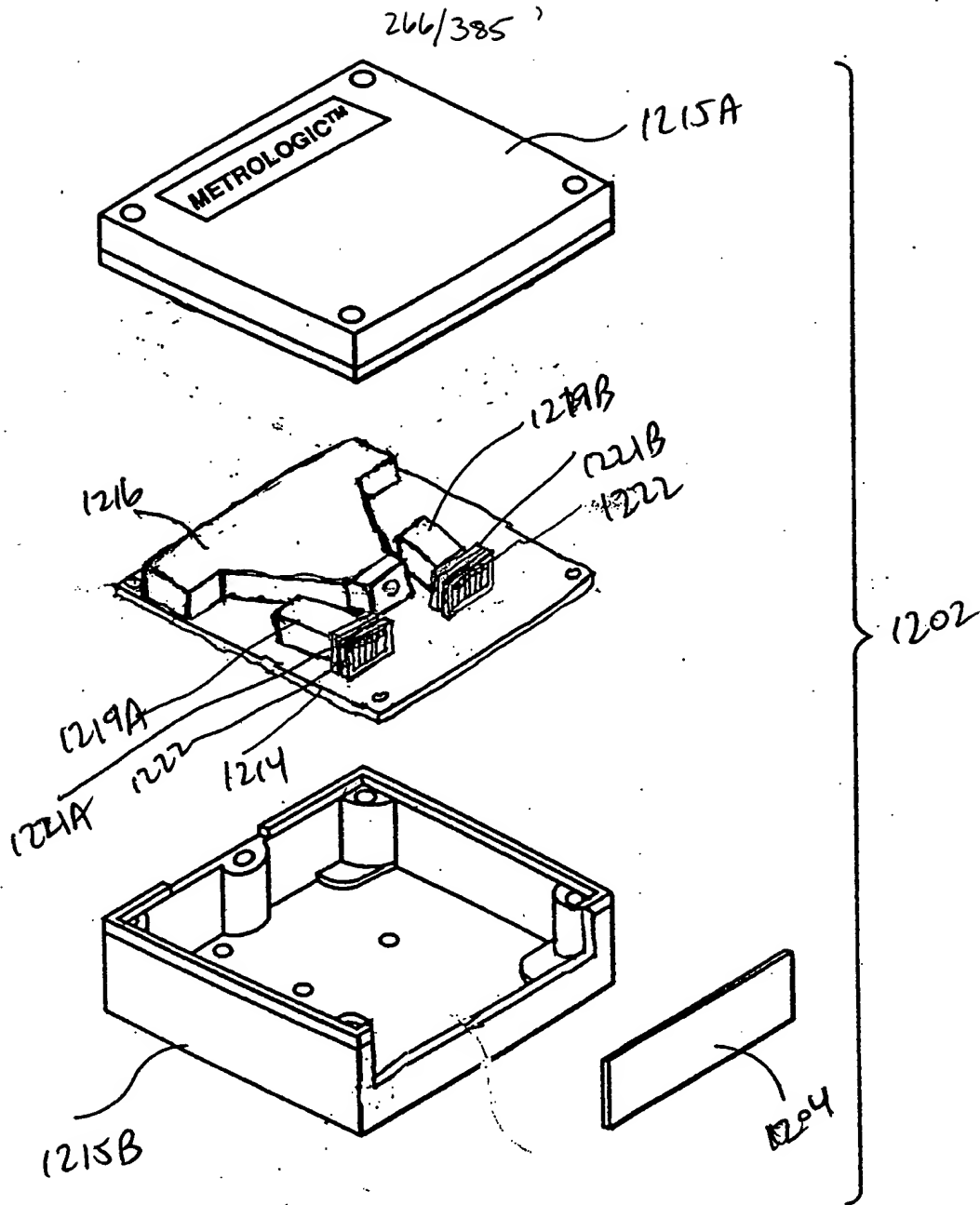


FIG. 39B

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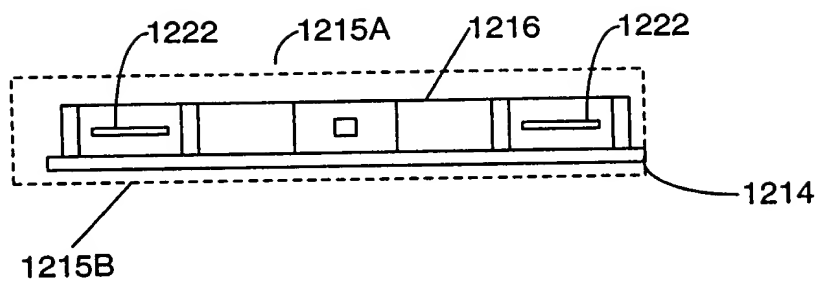


FIG. 39D

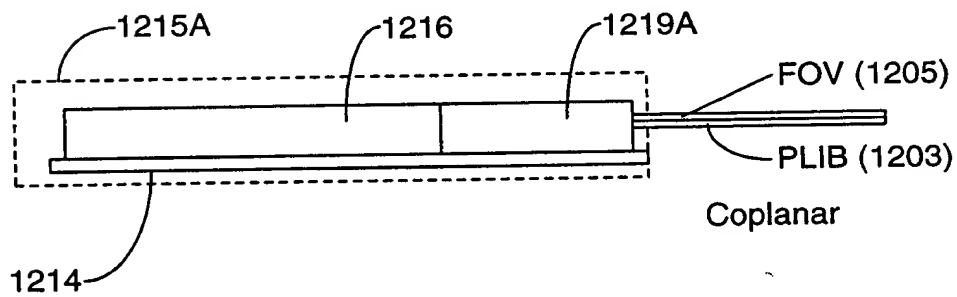


FIG. 39E

FIG. 39D

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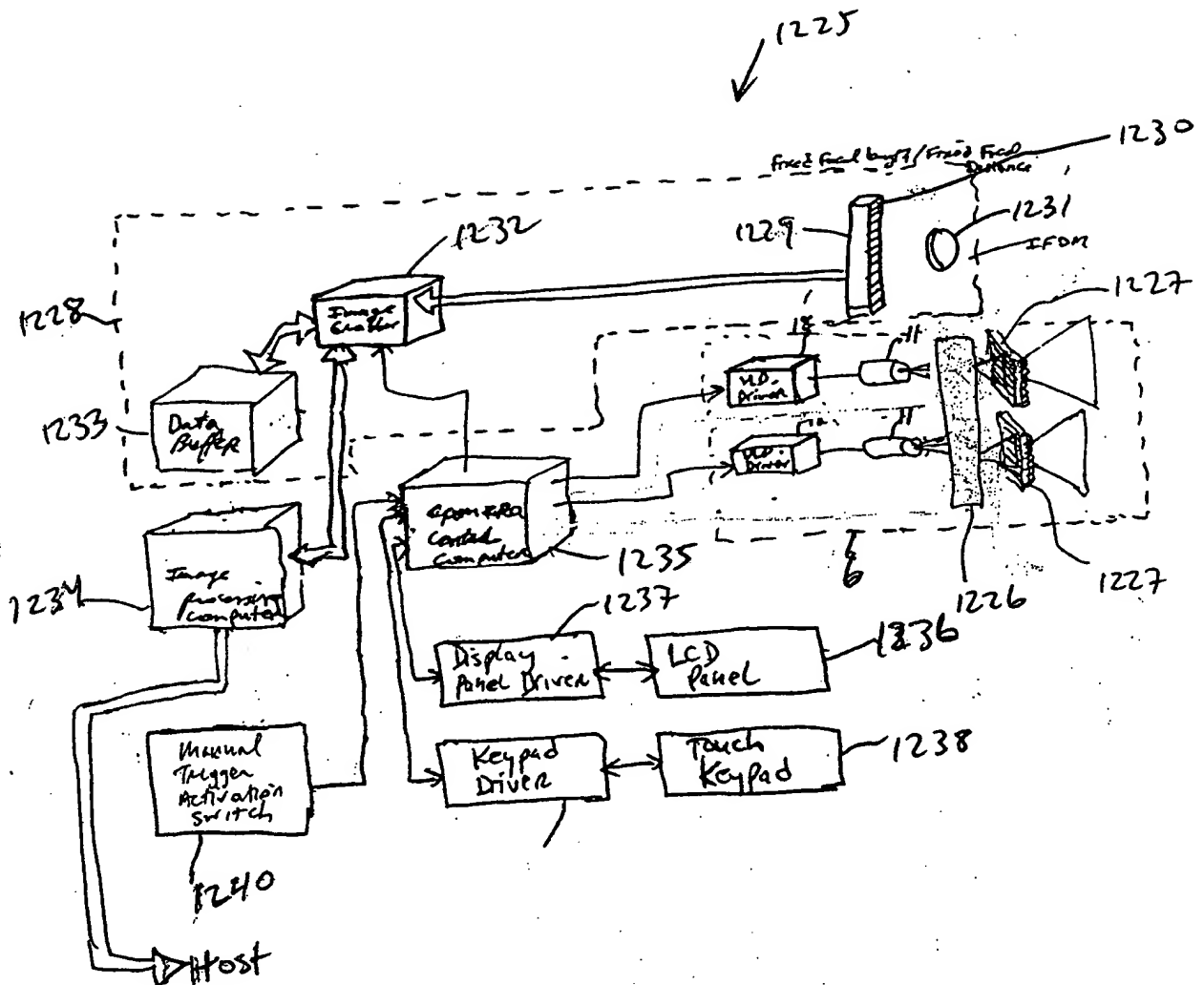
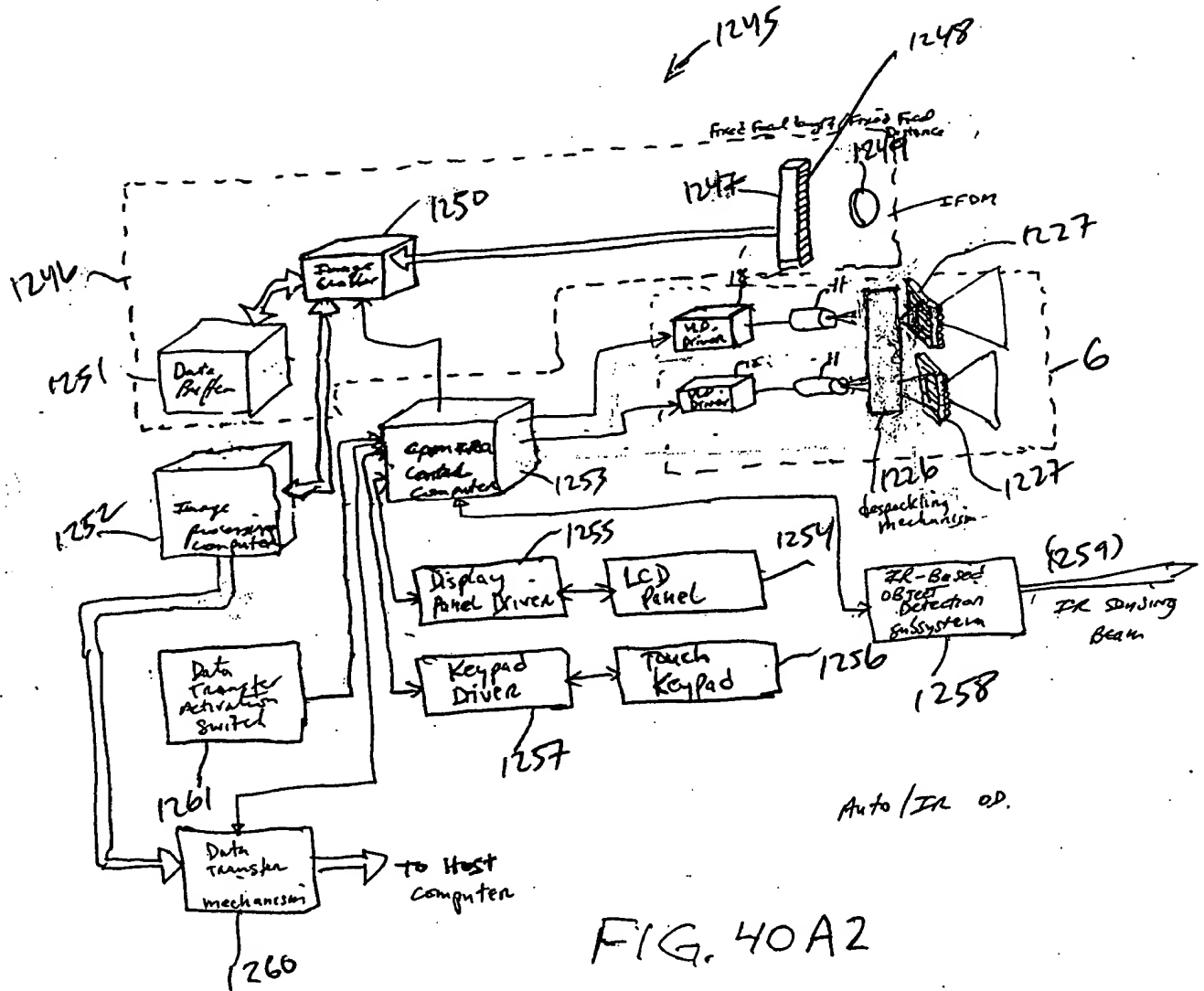
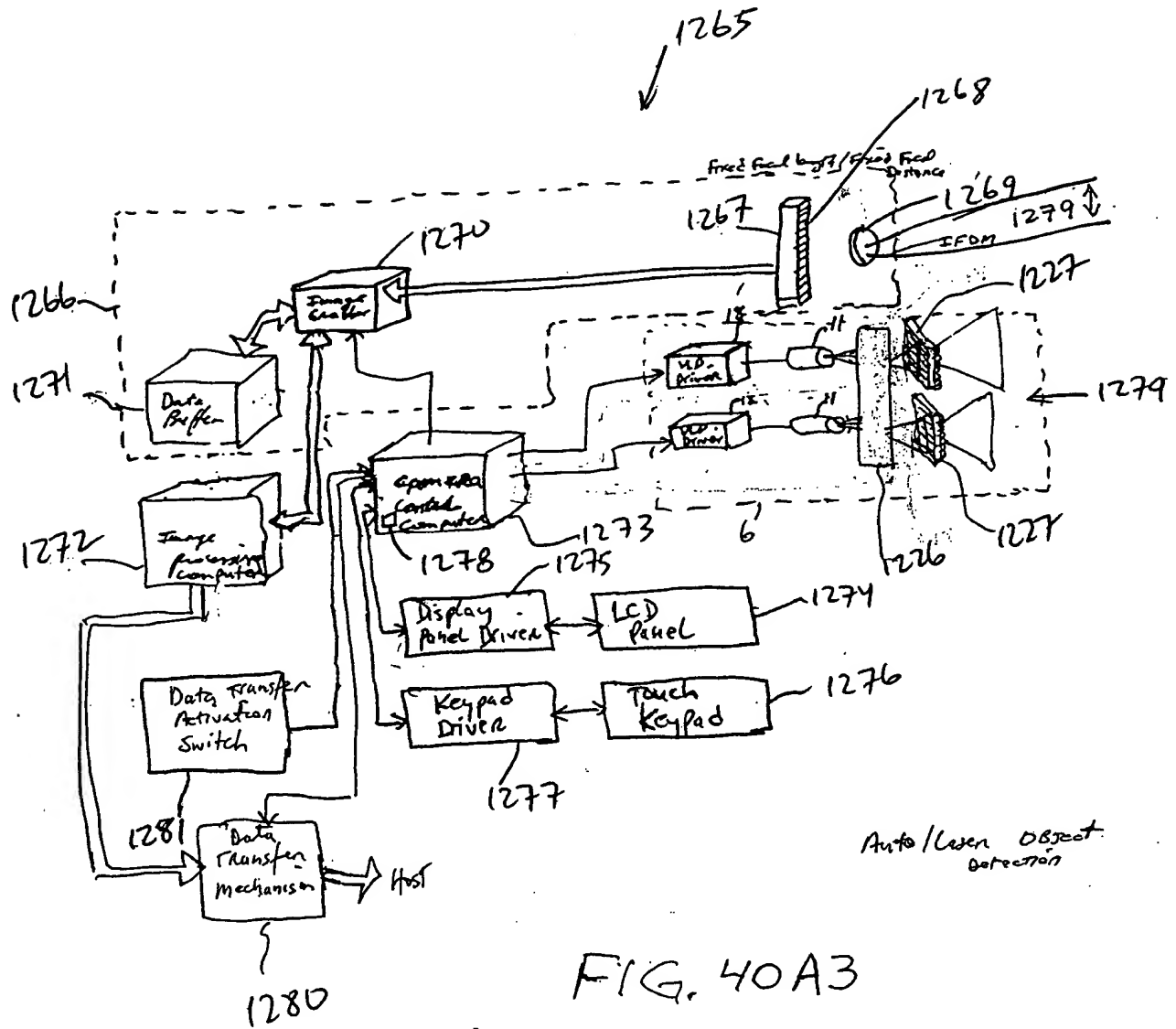


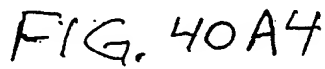
FIG. 40A1

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Station	Time	Wind	Temp	Humid	Cloud	Pressure	Remarks
1010	0000	10	10	10	10	10	10
1010	0100	10	10	10	10	10	10
1010	0200	10	10	10	10	10	10
1010	0300	10	10	10	10	10	10
1010	0400	10	10	10	10	10	10
1010	0500	10	10	10	10	10	10
1010	0600	10	10	10	10	10	10
1010	0700	10	10	10	10	10	10
1010	0800	10	10	10	10	10	10
1010	0900	10	10	10	10	10	10
1010	1000	10	10	10	10	10	10
1010	1100	10	10	10	10	10	10
1010	1200	10	10	10	10	10	10
1010	1300	10	10	10	10	10	10
1010	1400	10	10	10	10	10	10
1010	1500	10	10	10	10	10	10
1010	1600	10	10	10	10	10	10
1010	1700	10	10	10	10	10	10
1010	1800	10	10	10	10	10	10
1010	1900	10	10	10	10	10	10
1010	2000	10	10	10	10	10	10
1010	2100	10	10	10	10	10	10
1010	2200	10	10	10	10	10	10
1010	2300	10	10	10	10	10	10



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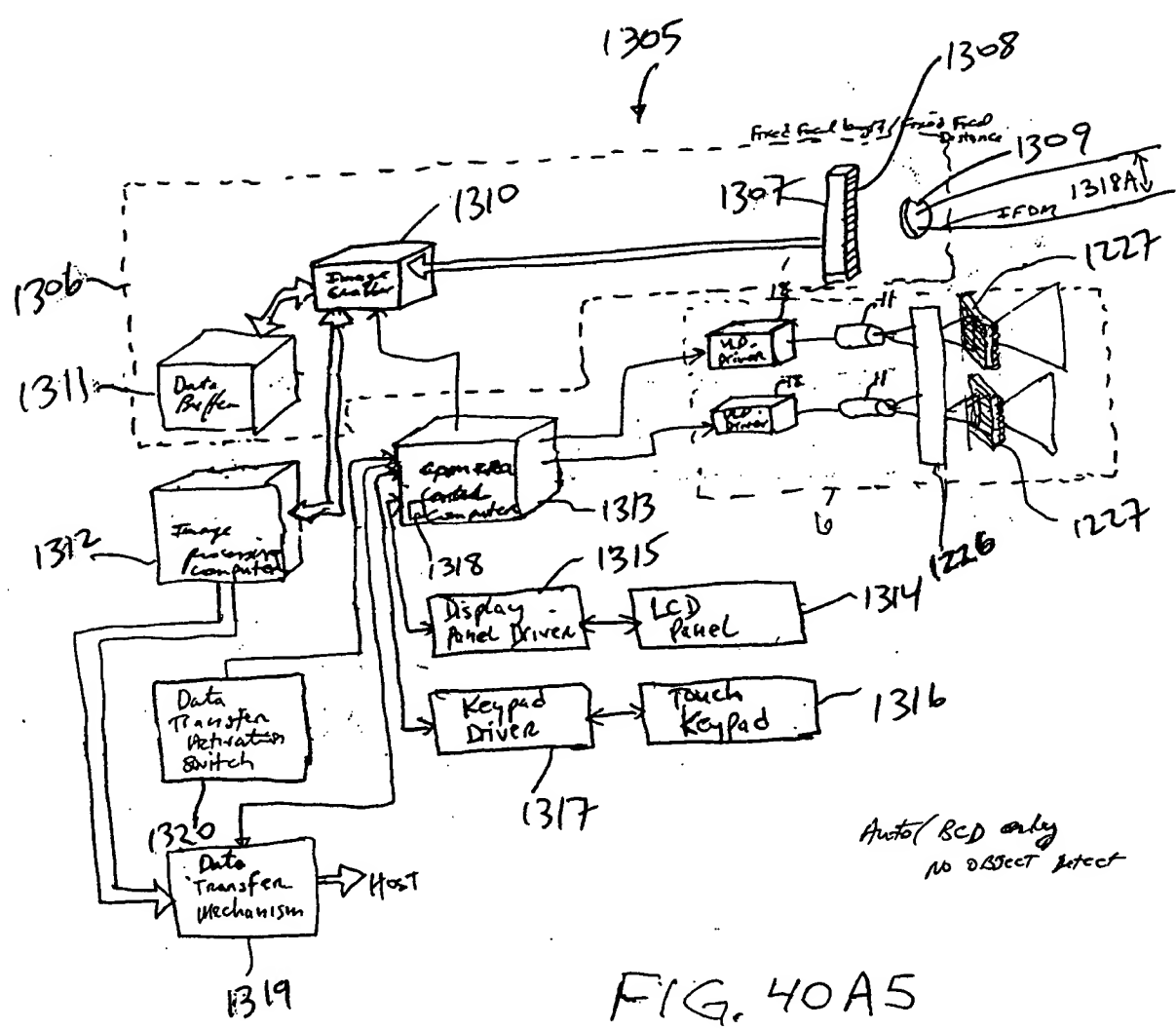


FIG. 40A5

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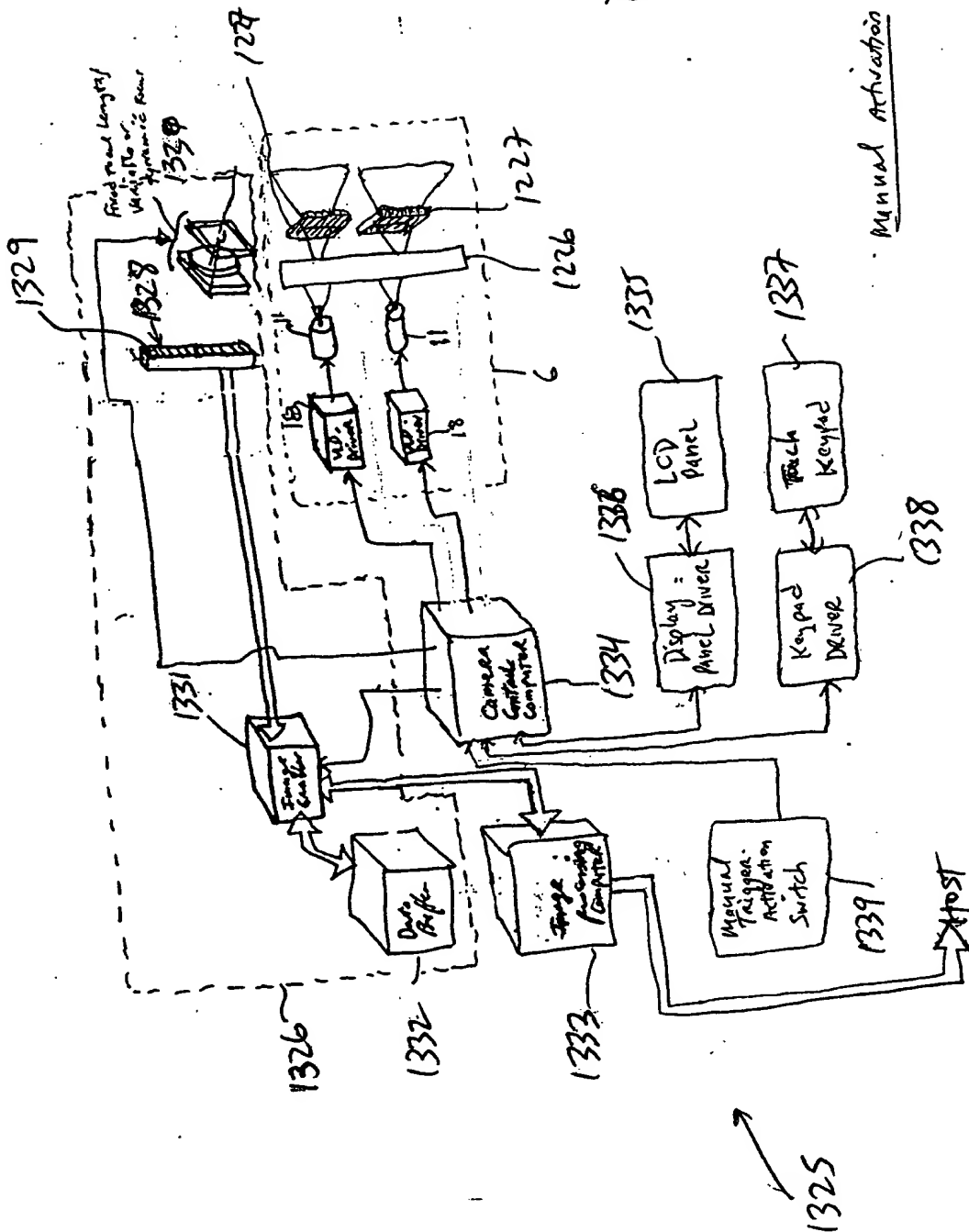
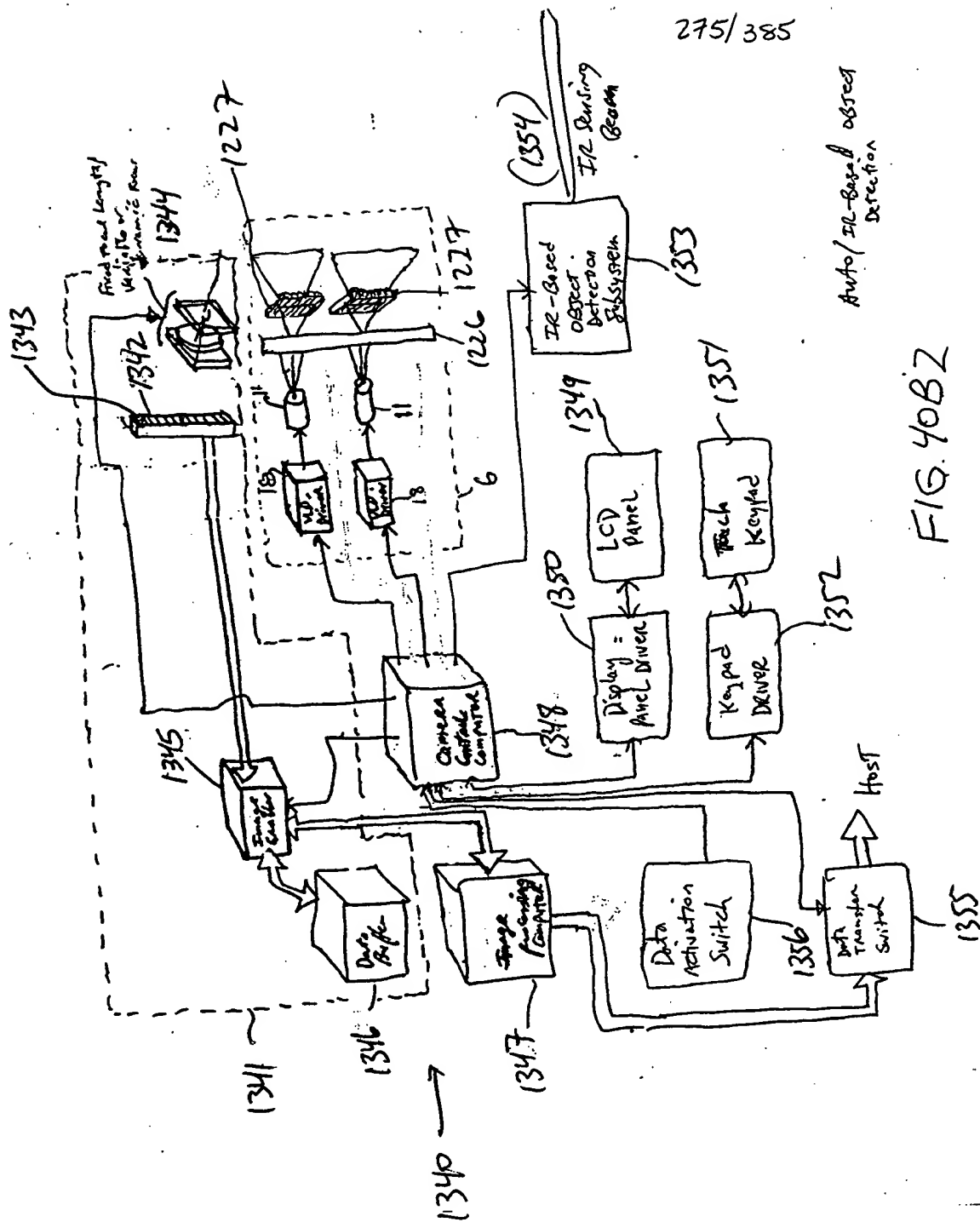


FIG. 40B1



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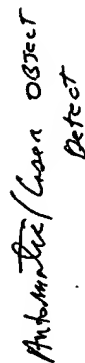
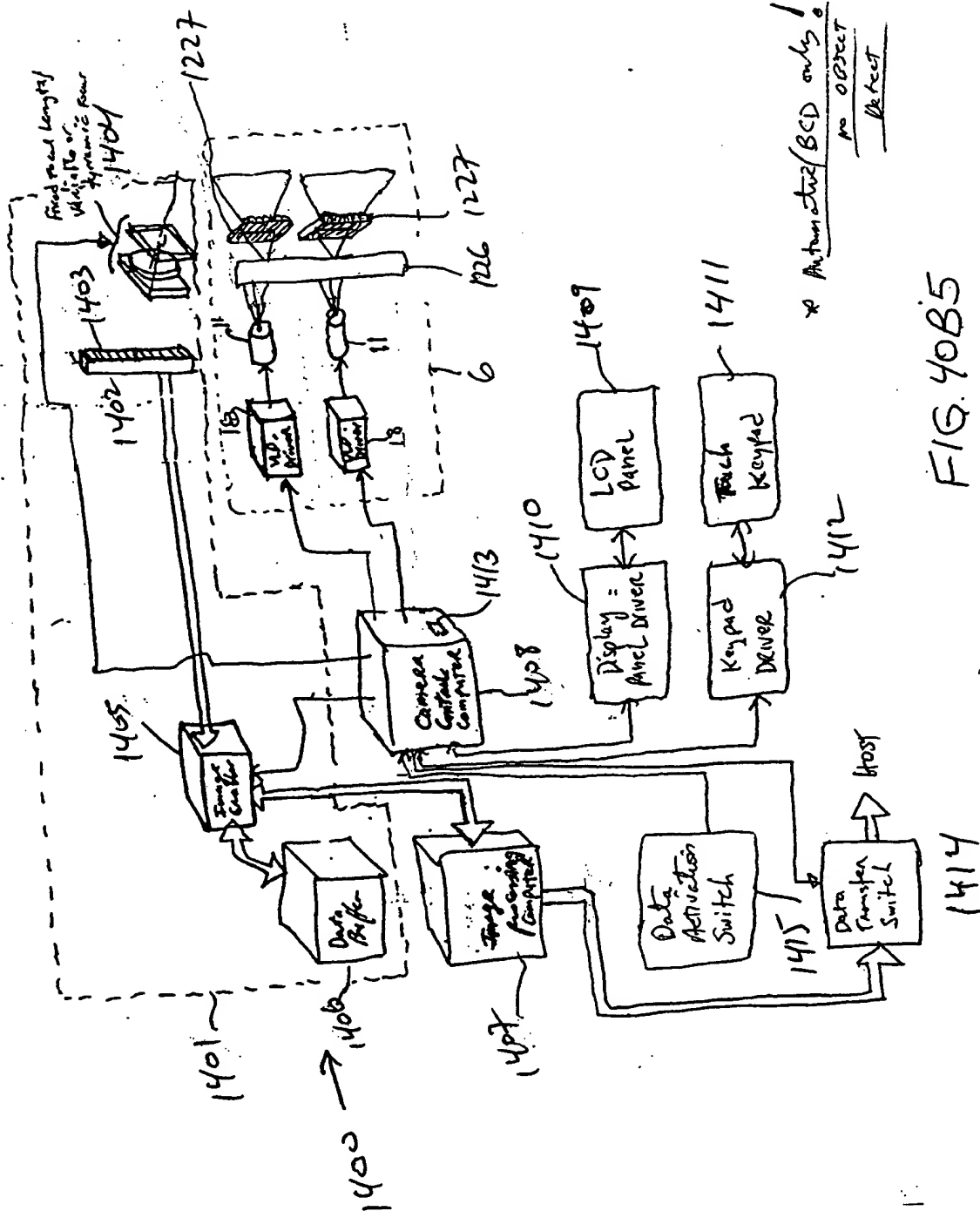


FIG. 40B3

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Manual Activation

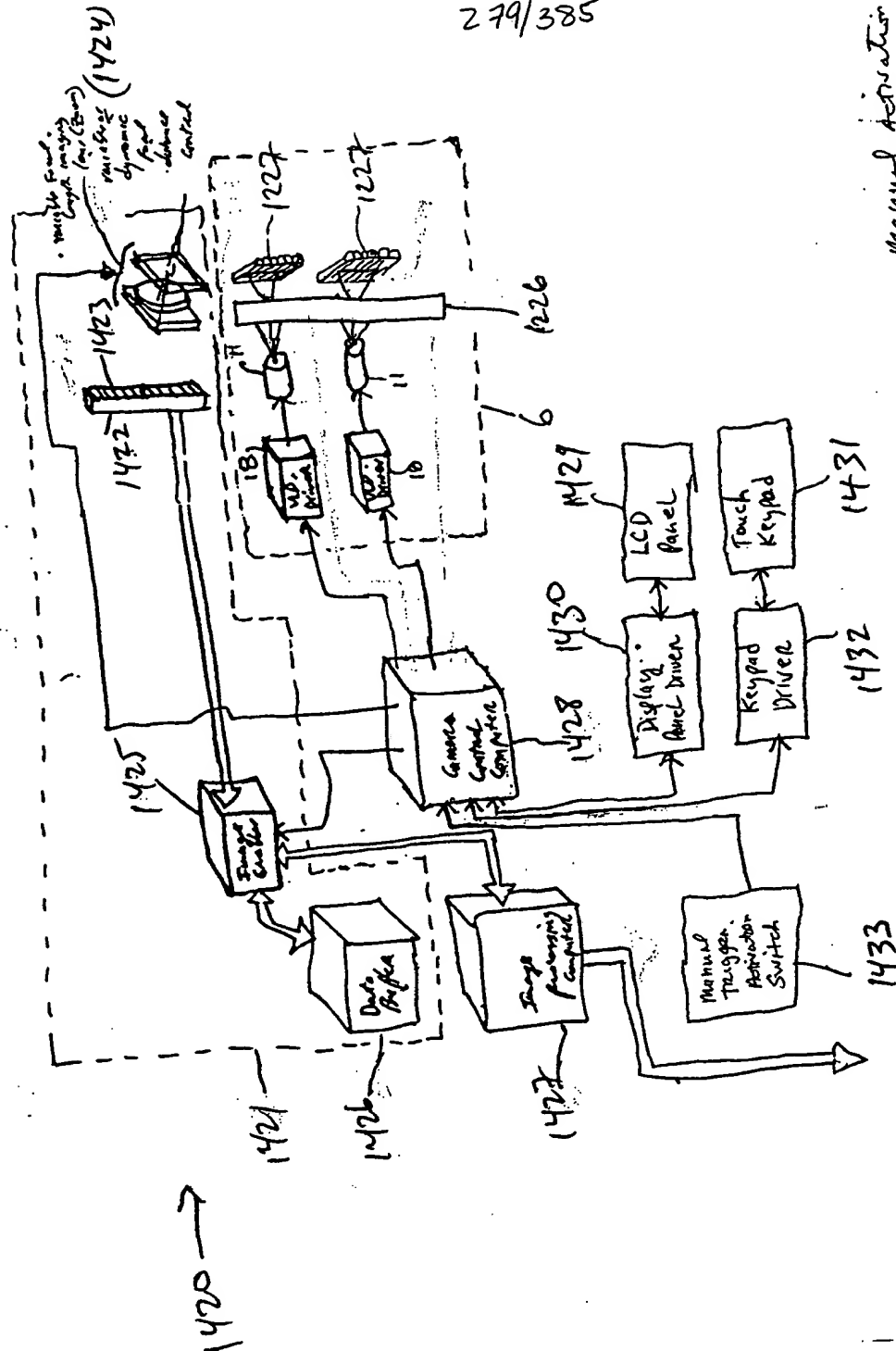
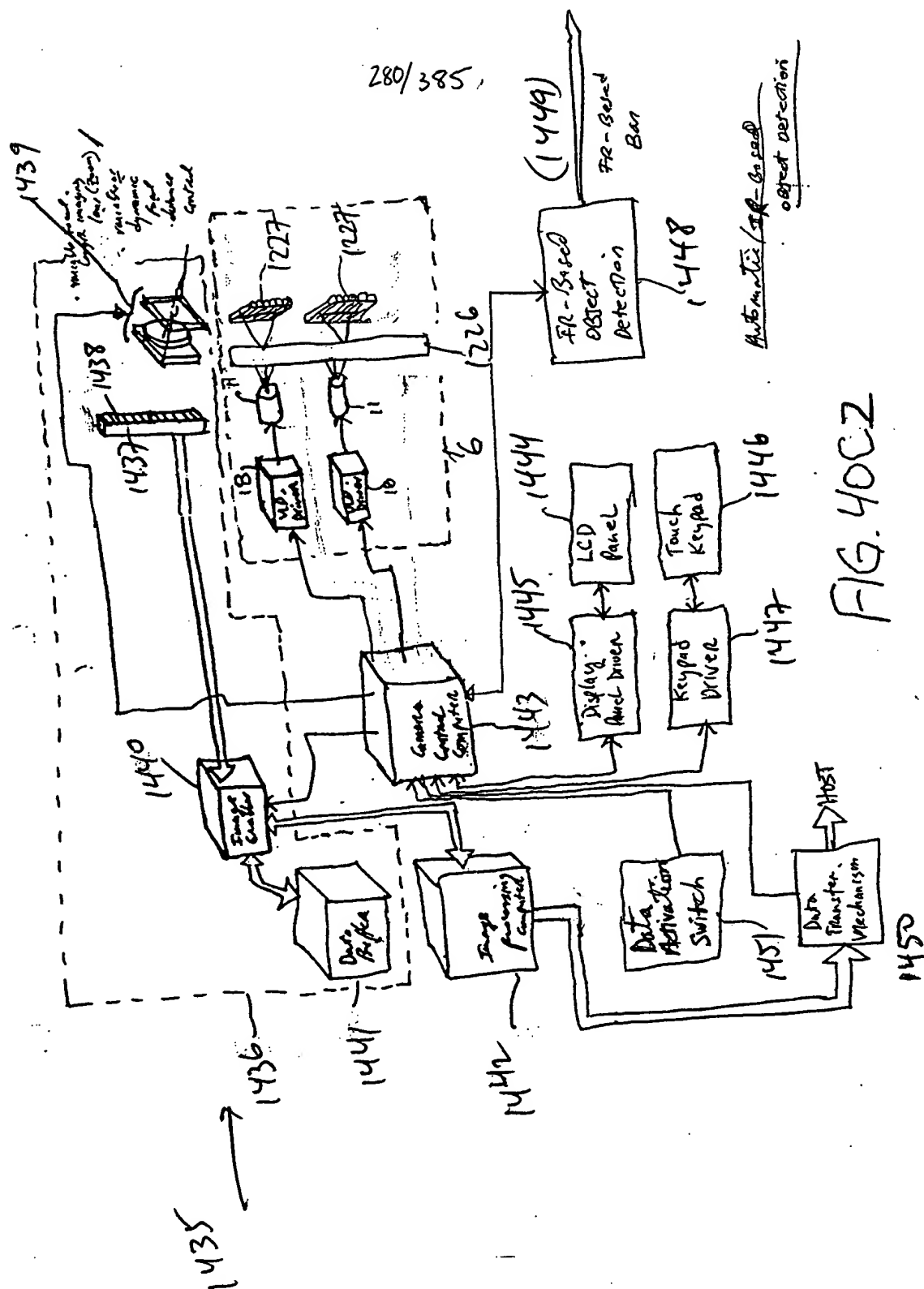


FIG. 40C1

12345678910111213141516171819202122232425262728293031323334353637383940414243444546474849505152535455565758596061626364656667686970717273747576777879808182838485868788899091929394959697989910010110210310410510610710810911011111211311411511611711811912012112212312412512612712812913013113213313413513613713813914014114214314414514614714814915015115215315415515615715815916016116216316416516616716816917017117217317417517617717817918018118218318418518618718818919019119219319419519619719819920020120220320420520620720820921021121221321421521621721821922022122222322422522622722822923023123223323423523623723823924024124224324424524624724824925025125225325425525625725825926026126226326426526626726826927027127227327427527627727827928028128228328428528628728828929029129229329429529629729829930030130230330430530630730830931031131231331431531631731831932032132232332432532632732832933033133233333433533633733833934034134234334434534634734834935035135235335435535635735835936036136236336436536636736836937037137237337437537637737837938038138238338438538638738838939039139239339439539639739839940040140240340440540640740840941041141241341441541641741841942042142242342442542642742842943043143243343443543643743843944044144244344444544644744844945045145245345445545645745845946046146246346446546646746846947047147247347447547647747847948048148248348448548648748848949049149249349449549649749849950050150250350450550650750850951051151251351451551651751851952052152252352452552652752852953053153253353453553653753853954054154254354454554654754854955055155255355455555655755855956056156256356456556656756856957057157257357457557657757857958058158258358458558658758858959059159259359459559659759859960060160260360460560660760860961061161261361461561661761861962062162262362462562662762862963063163263363463563663763863964064164264364464564664764864965065165265365465565665765865966066166266366466566666766866967067167267367467567667767867968068168268368468568668768868969069169269369469569669769869970070170270370470570670770870971071171271371471571671771871972072172272372472572672772872973073173273373473573673773873974074174274374474574674774874975075175275375475575675775875976076176276376476576676776876977077177277377477577677777877978078178278378478578678778878979079179279379479579679779879980080180280380480580680780880981081181281381481581681781881982082182282382482582682782882983083183283383483583683783883984084184284384484584684784884985085185285385485585685785885986086186286386486586686786886987087187287387487587687787887988088188288388488588688788888989089189289389489589689789889990090190290390490590690790890991091191291391491591691791891992092192292392492592692792892993093193293393493593693793893994094194294394494594694794894995095195295395495595695795895996096196296396496596696796896997097197297397497597697797897998098198298398498598698798898999099199299399499599699799899910001001100210031004100510061007100810091010101110121013101410151016101710181019102010211022102310241025102610271028102910301031103210331034103510361037103810391040104110421043104410451046104710481049105010511052105310541055105610571058105910601061106210631064106510661067106810691070107110721073107410751076107710781079108010811082108310841085108610871088108910901091109210931094109510961097109810991100110111021103110411051106110711081109111011111112111311141115111611171118111911201121112211231124112511261127112811291130113111321133113411351136113711381139114011411142114311441145114611471148114911501151115211531154115511561157115811591160116111621163116411651166116711681169117011711172117311741175117611771178117911801181118211831184118511861187118811891190119111921193119411951196119711981199120012011202120312041205120612071208120912101211121212131214121512161217121812191220122112221223122412251226122712281229123012311232123312341235123612371238123912401241124212431244124512461247124812491250125112521253125412551256125712581259126012611262126312641265126612671268126912701271127212731274127512761277127812791280128112821283128412851286128712881289129012911292129312941295129612971298129913



00000585-11101

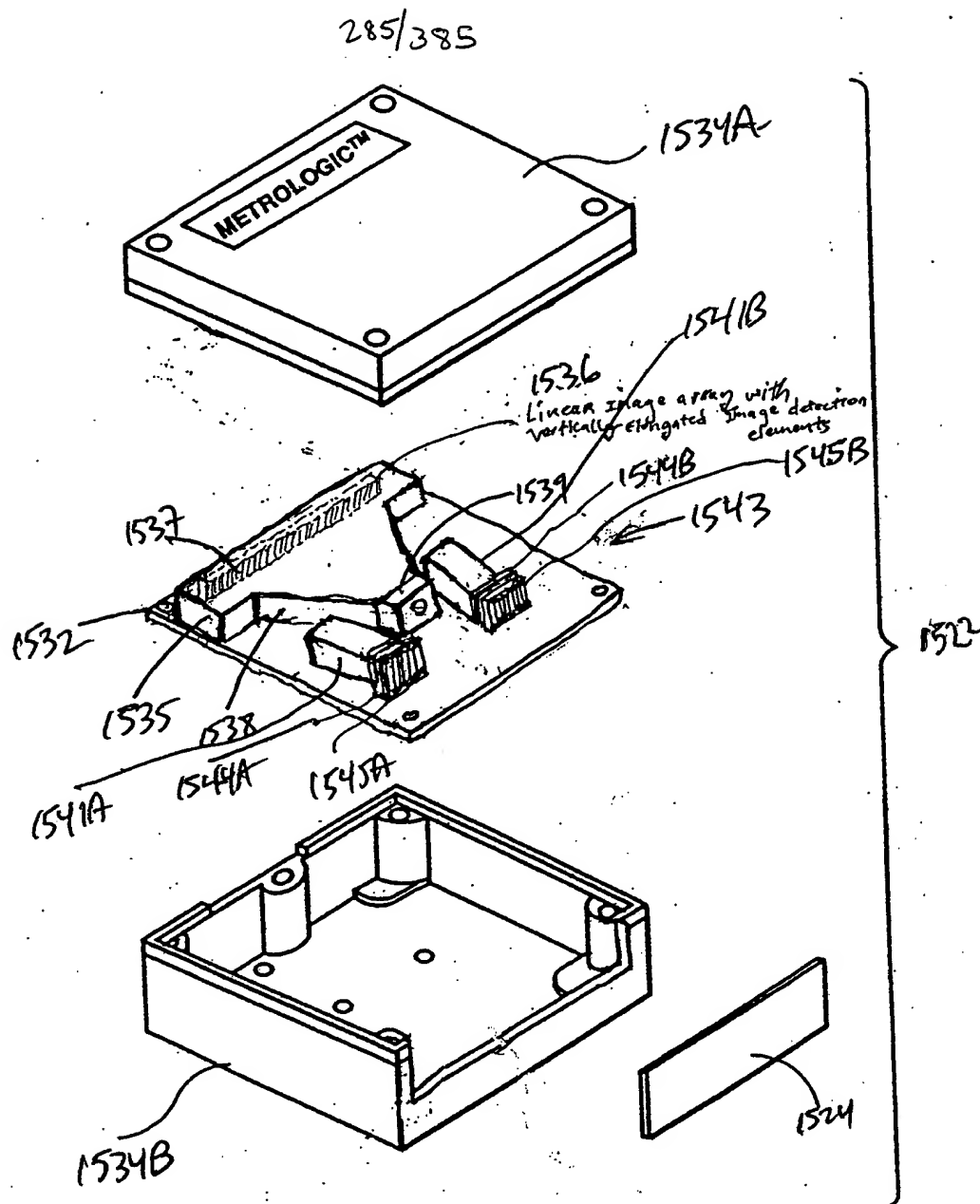


FIG. 41B

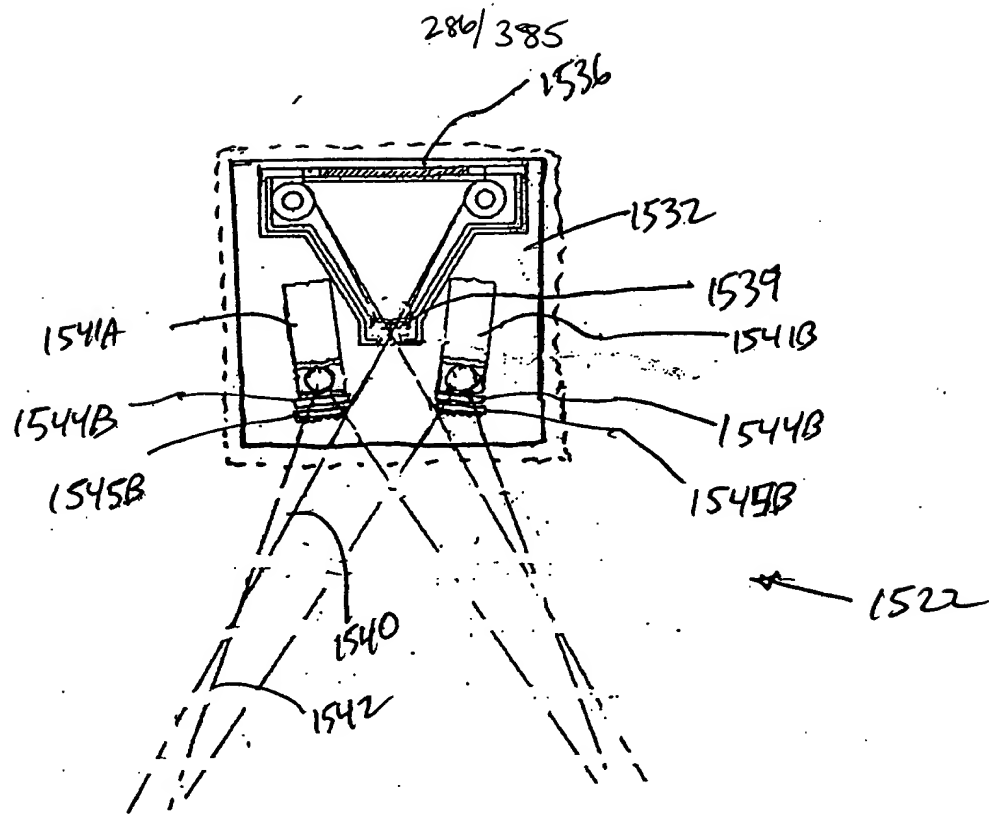


FIG. 41C

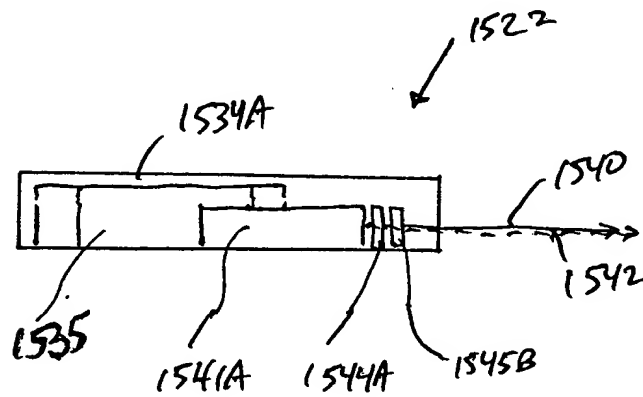


FIG. 41D

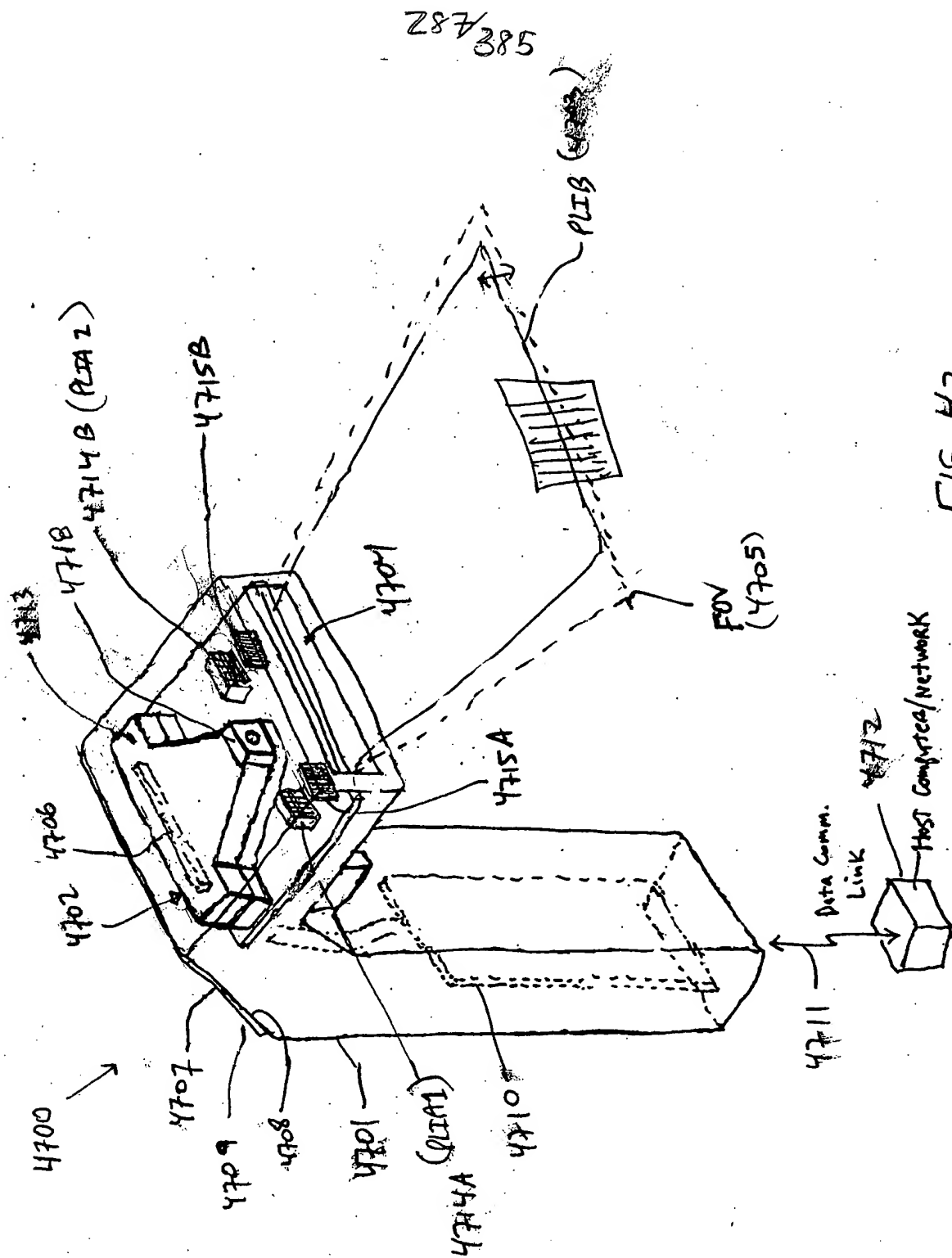
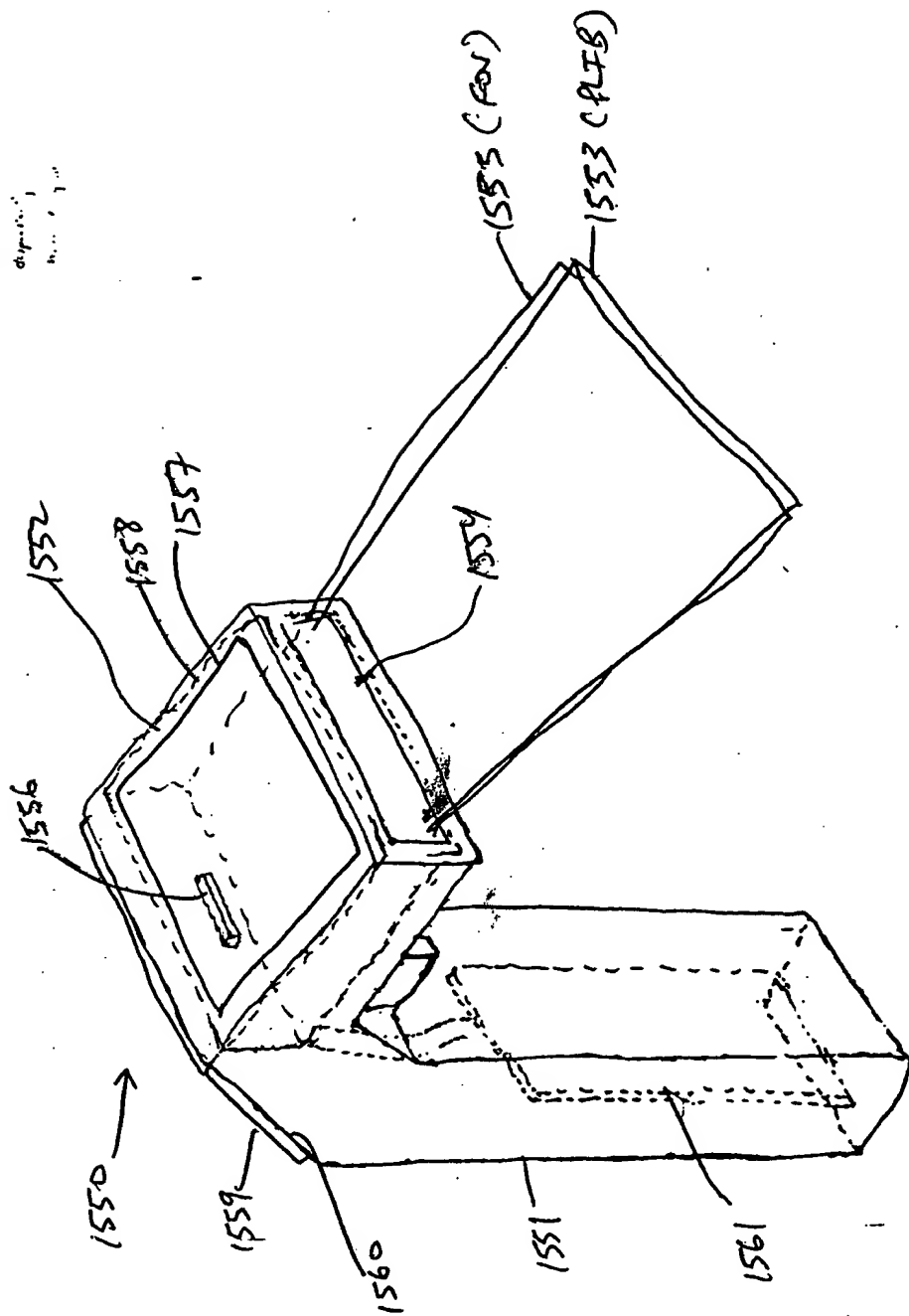


FIG. 42A

1-D
display
unit



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FIG. 42A

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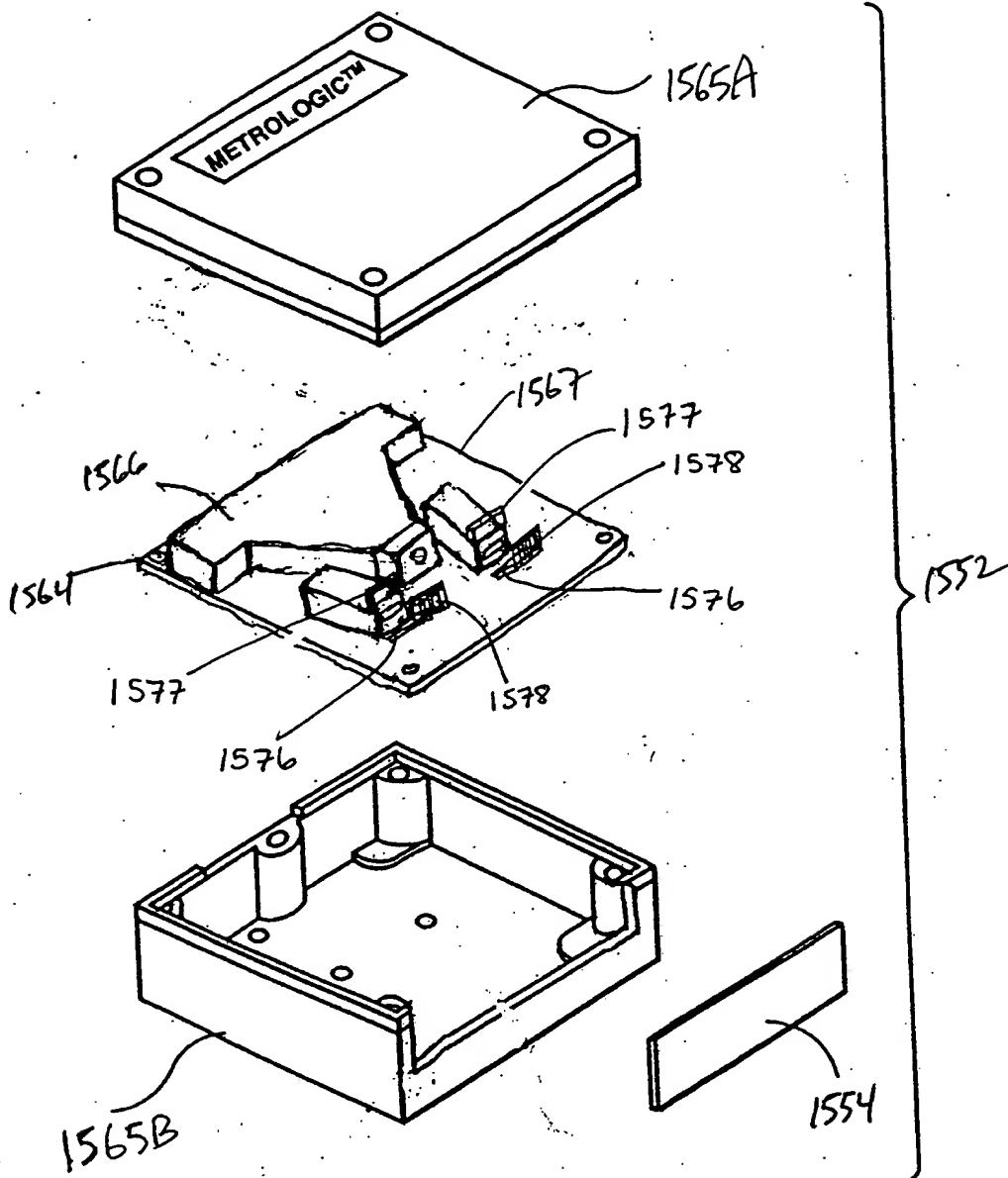


FIG. 42B

0990585 12101

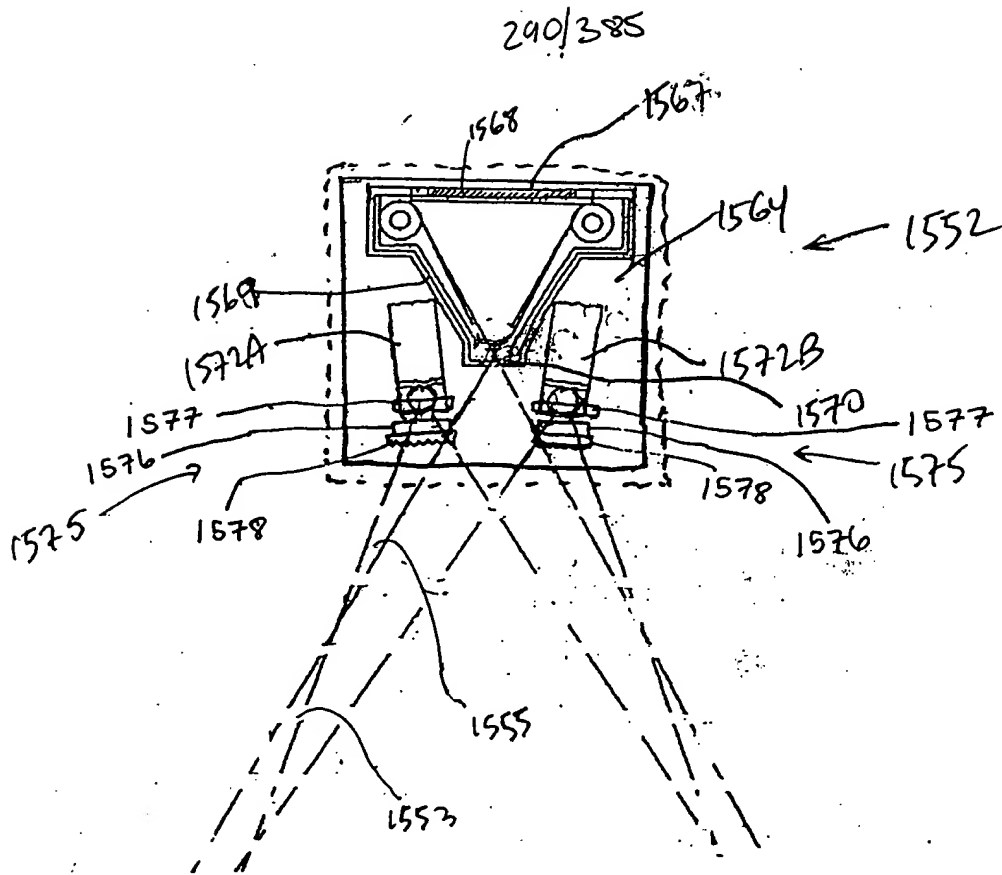


FIG. 42C

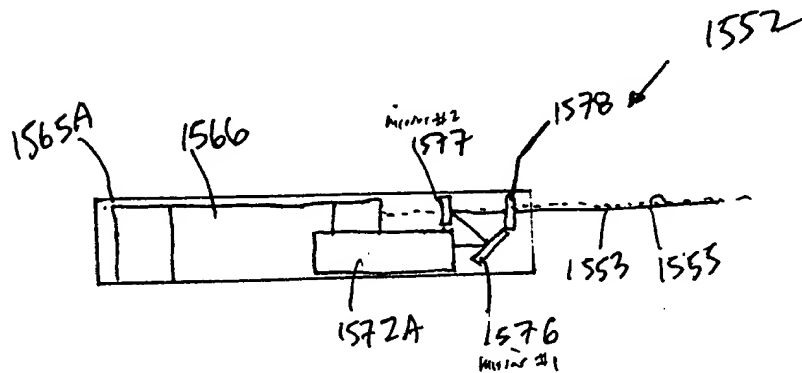
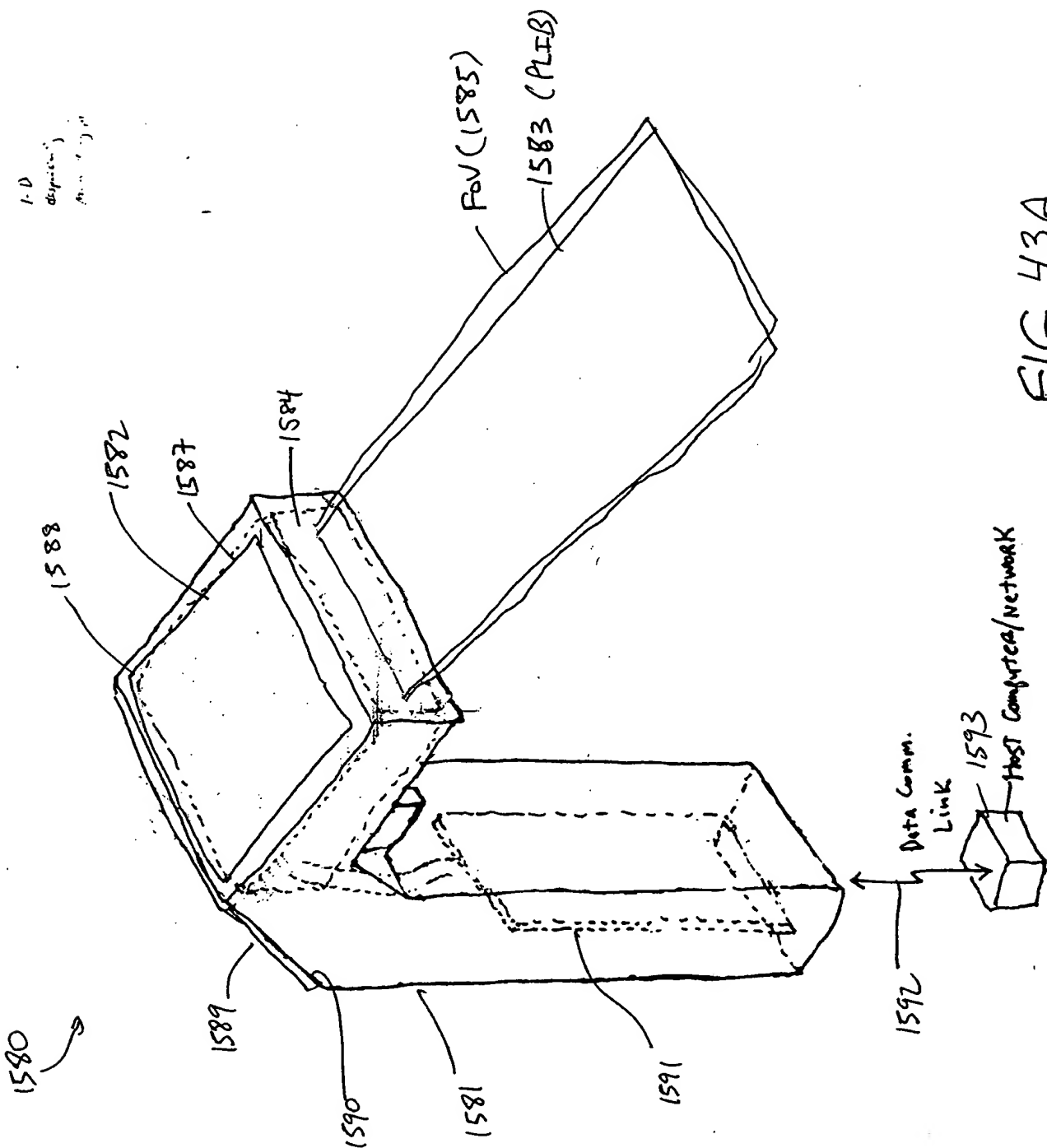


FIG. 42D

NOTE: 55506660



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FIG. 43A

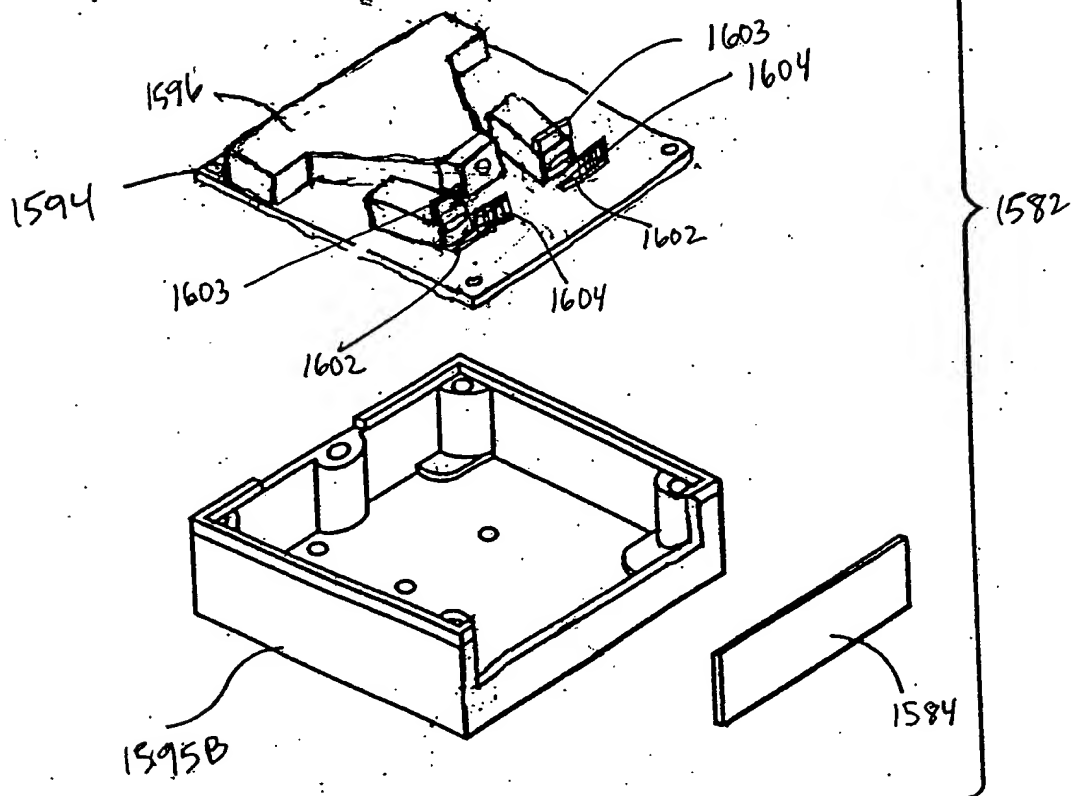
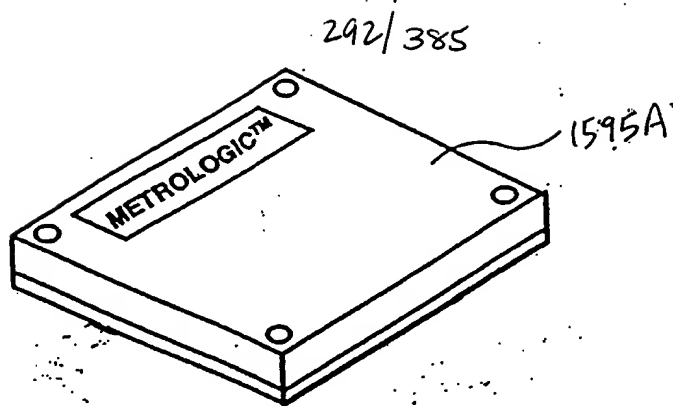
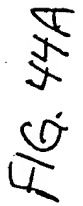


FIG. 43B



- Host Computer/network

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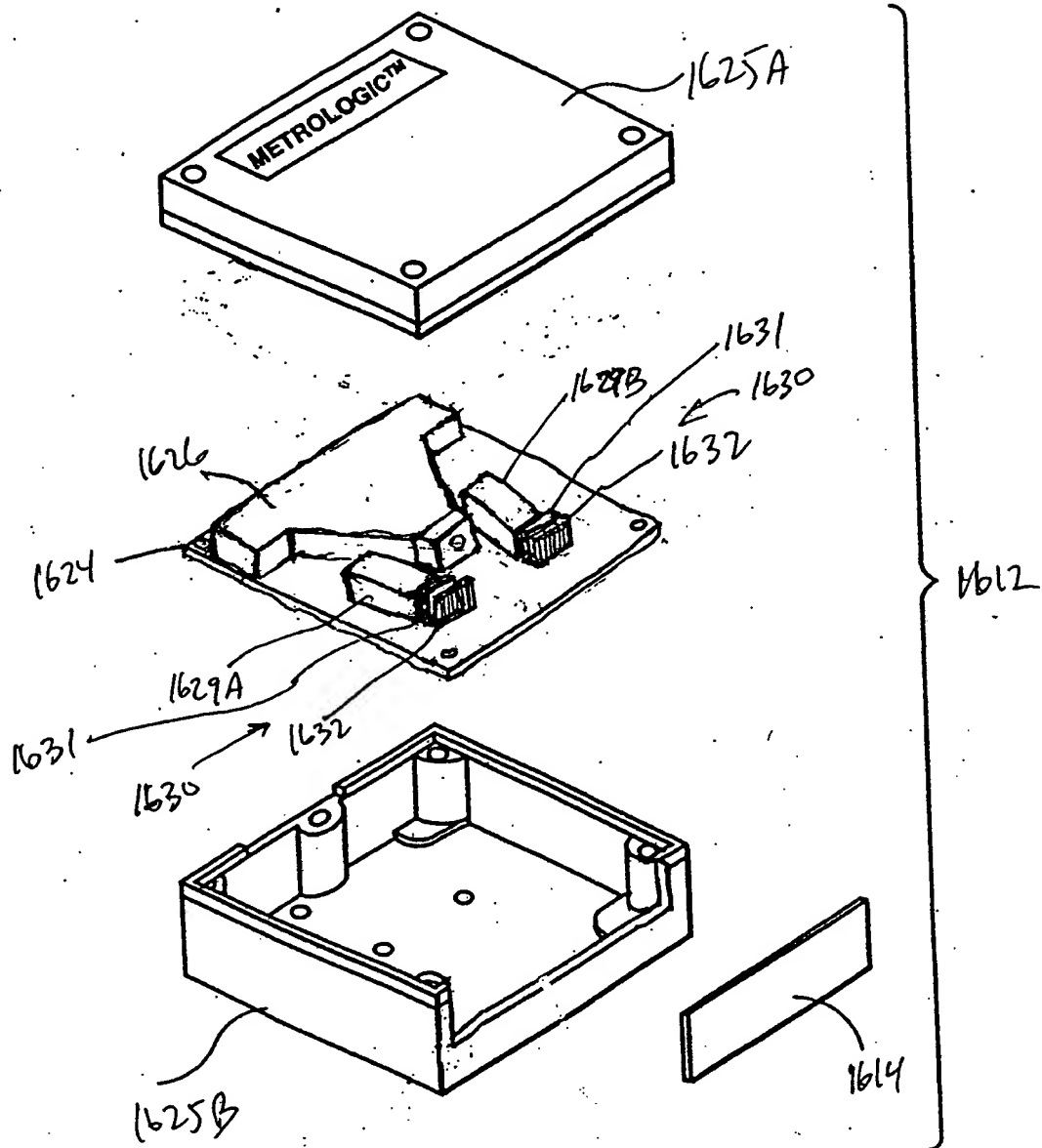
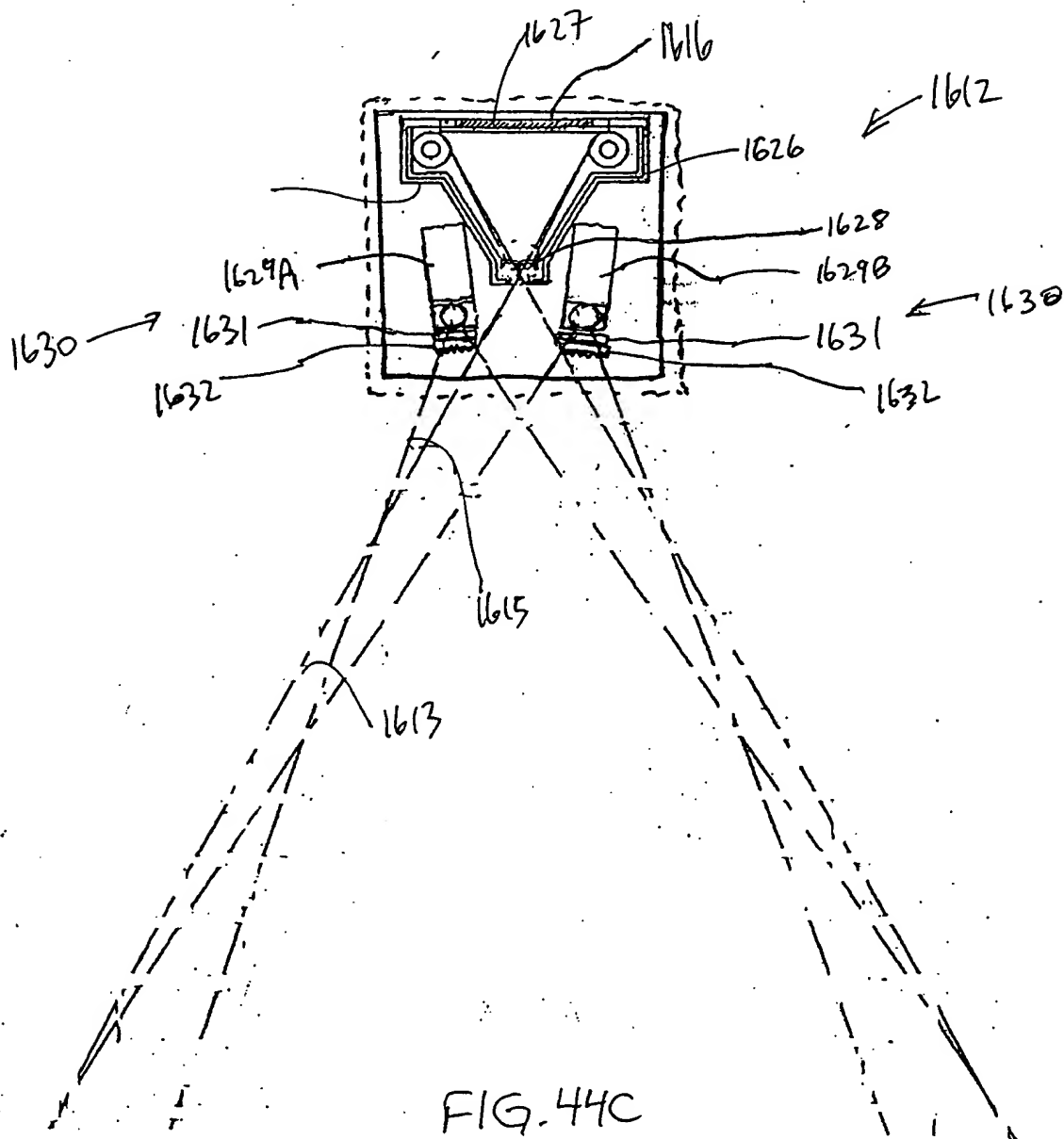


FIG. 44B

0000055-112101
FOR FTS 5850860

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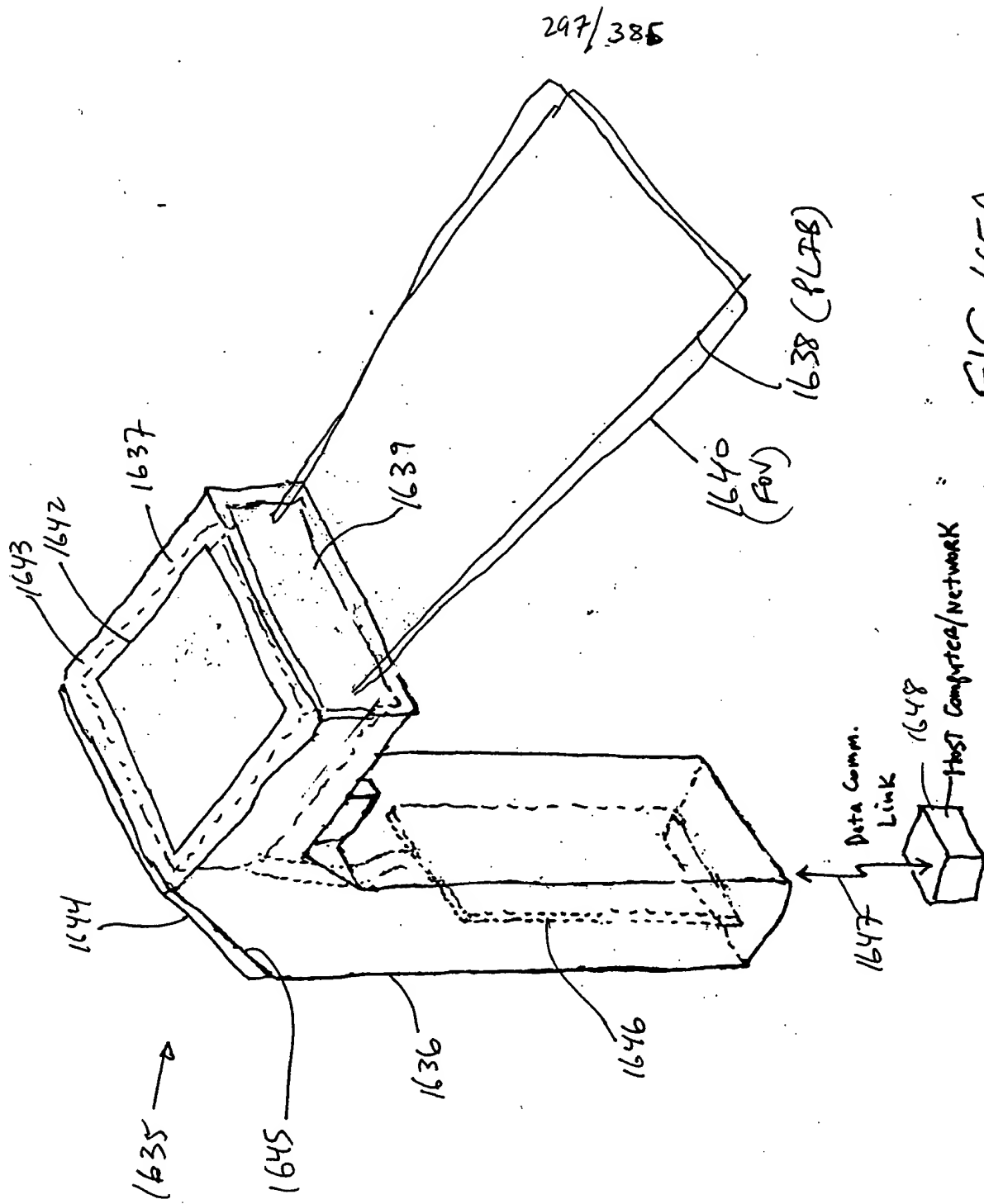


FIG. 45A

00000585.12101

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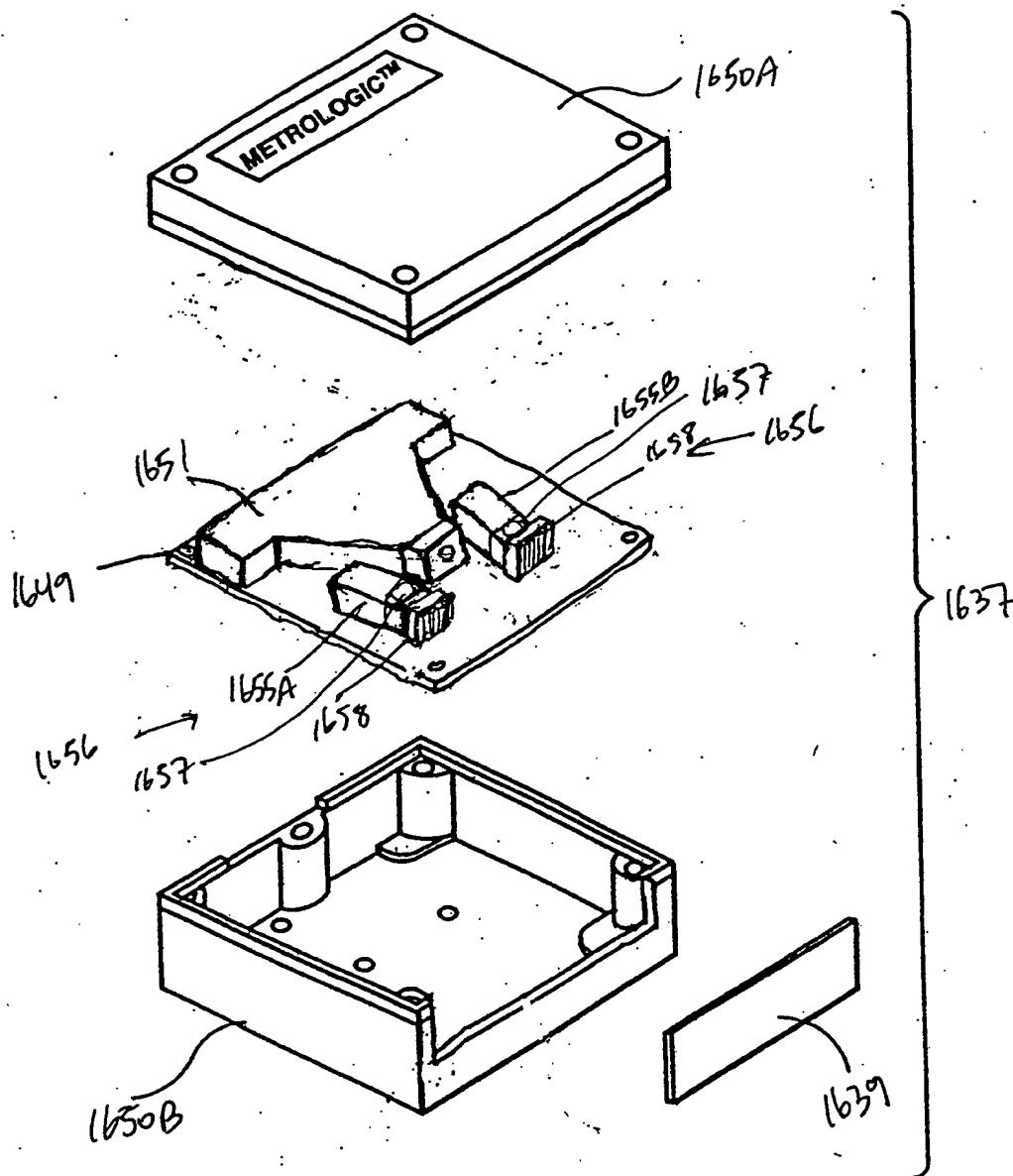


FIG. 45B

00000585 12101

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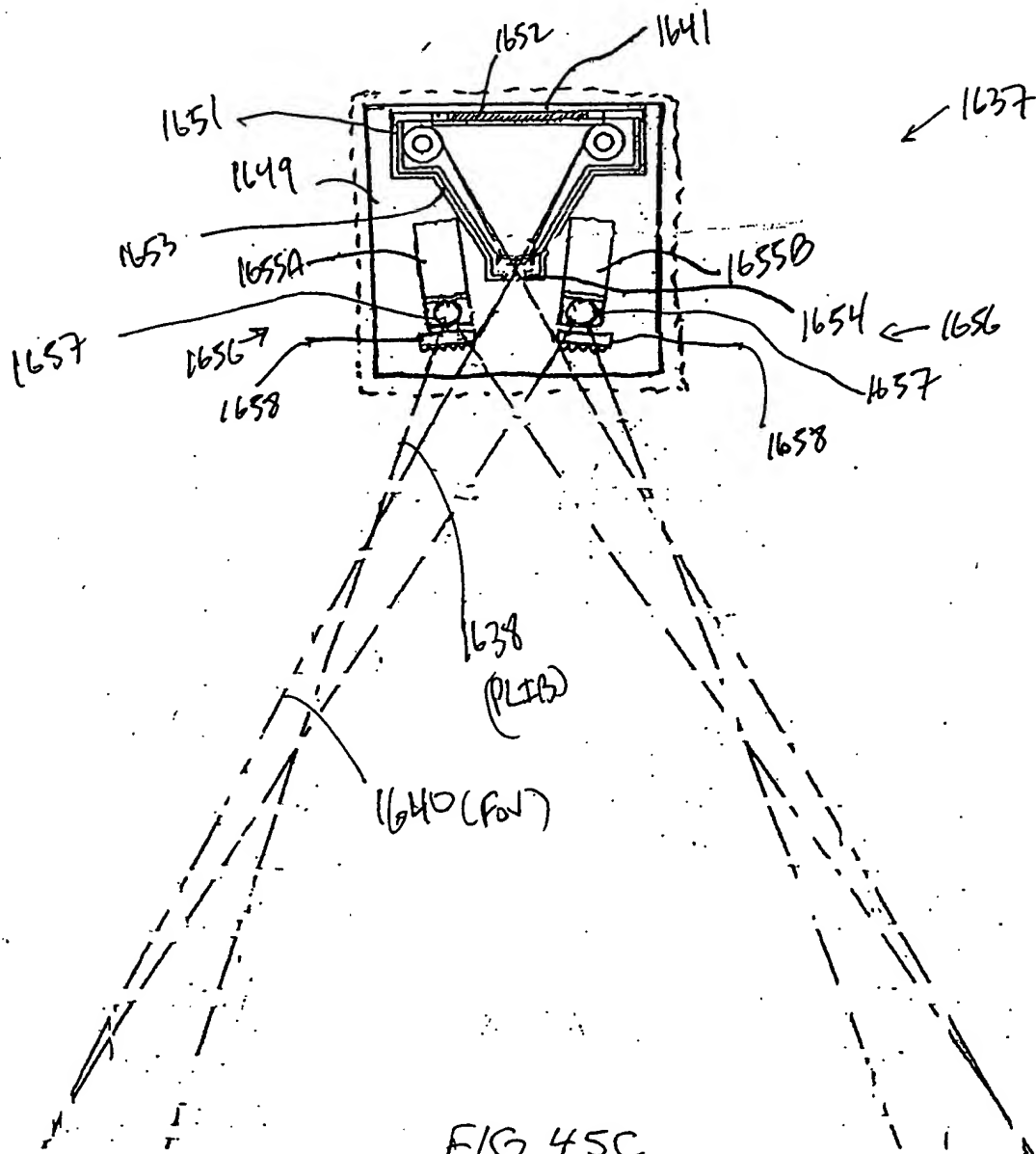


FIG. 45C

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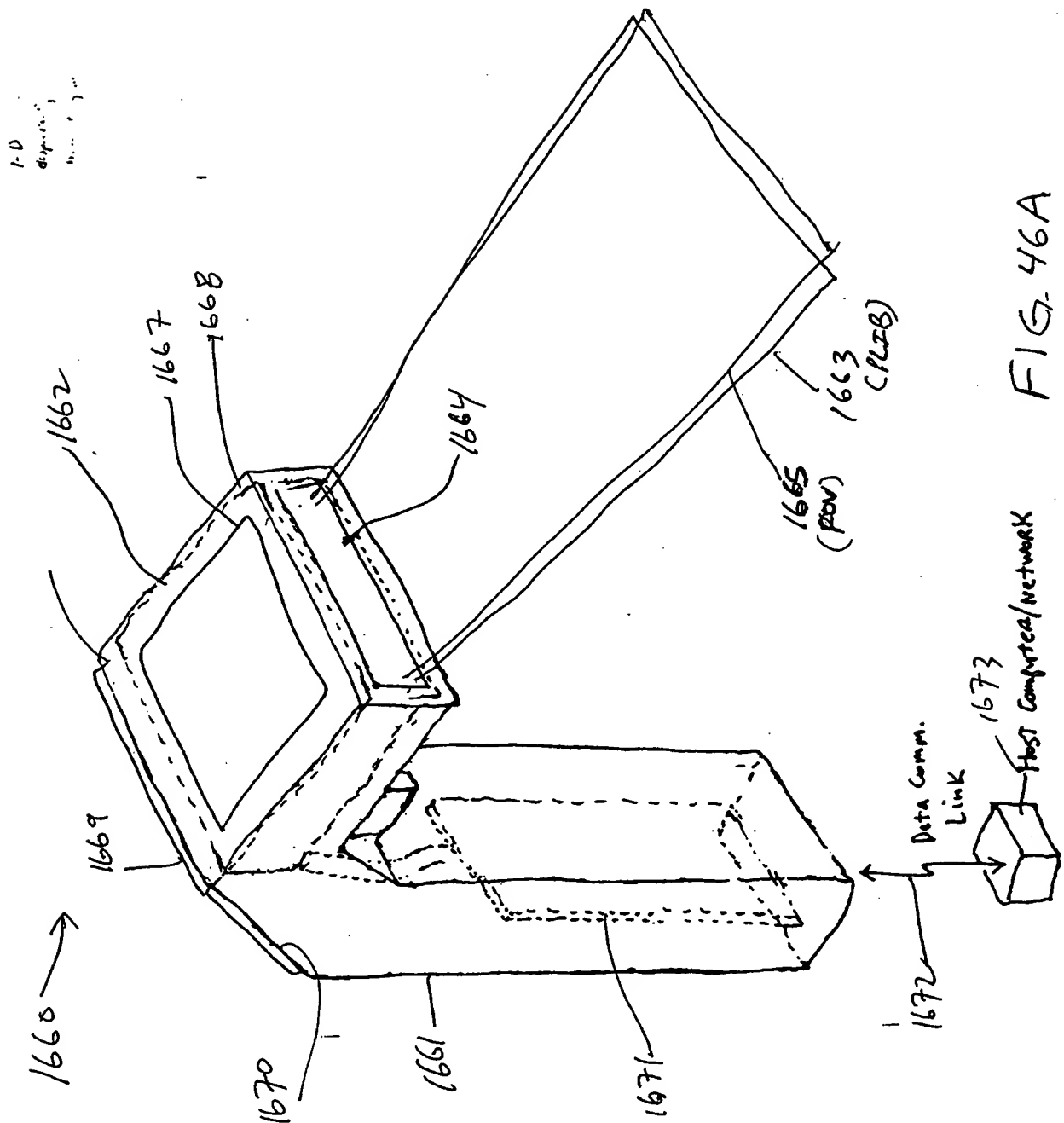


FIG. 46A

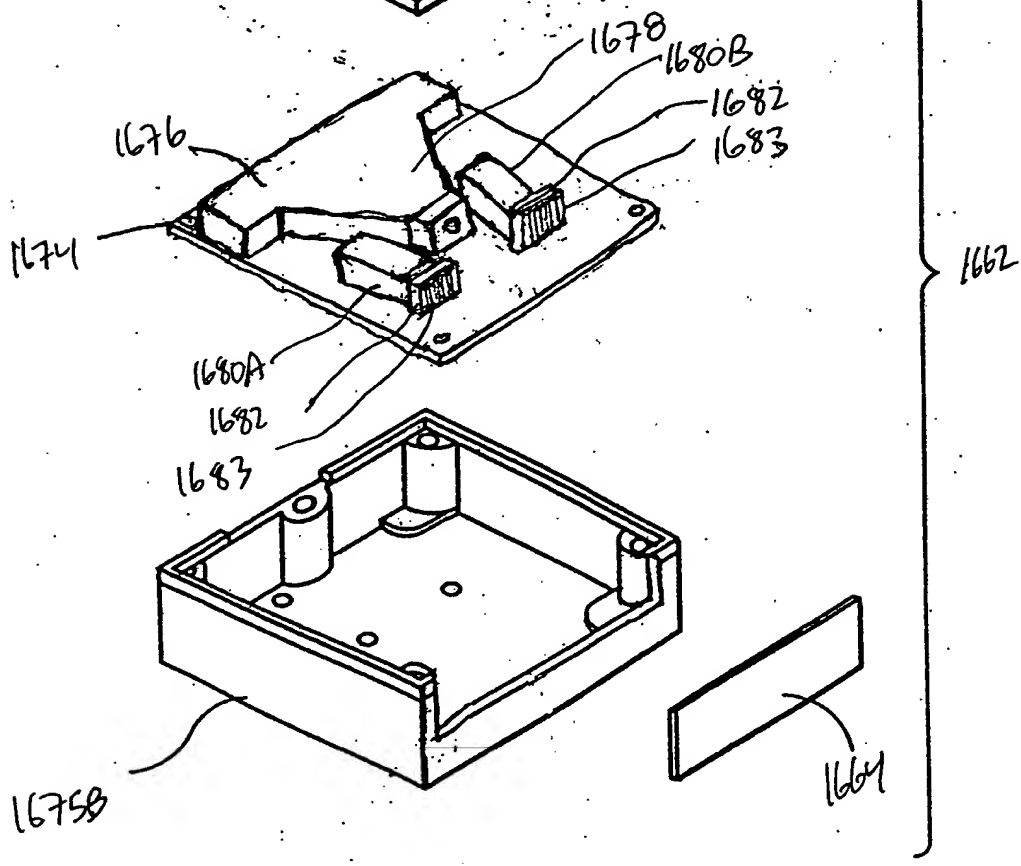
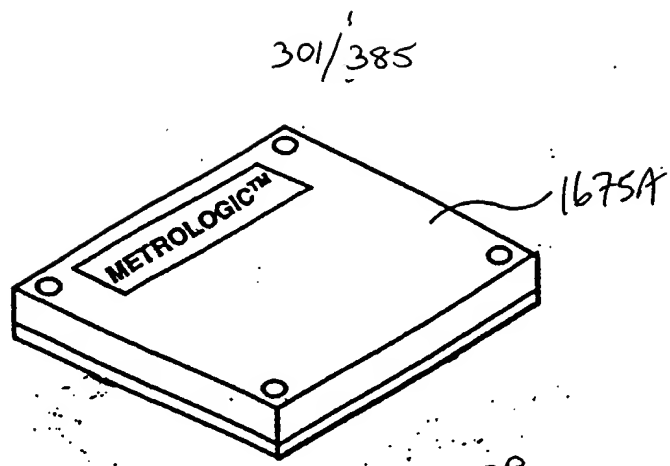
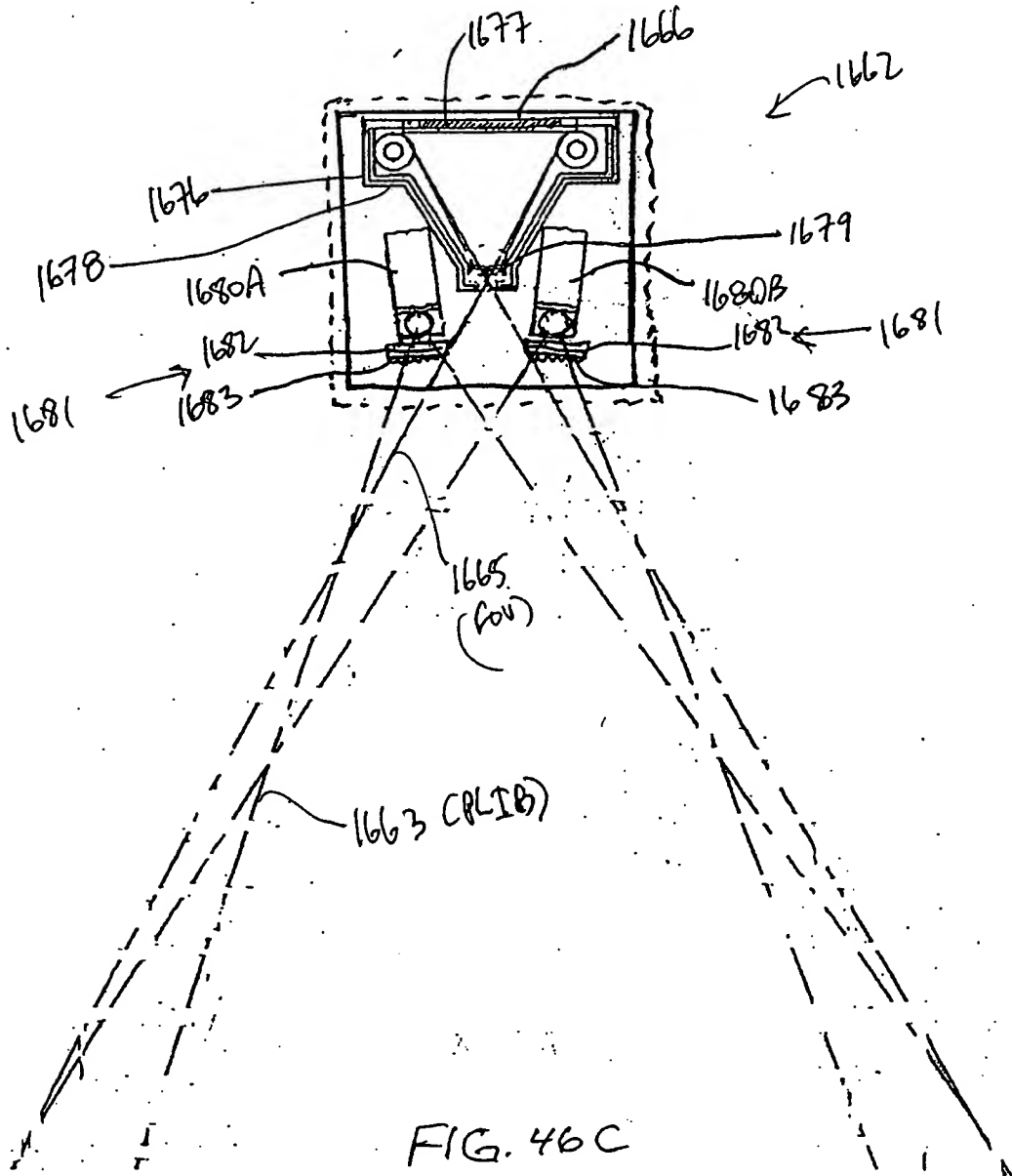


FIG. 46B

000055-1101

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1-D
d: 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5, 6.0, 6.5, 7.0, 7.5, 8.0, 8.5, 9.0, 9.5, 10.0, 10.5, 11.0, 11.5, 12.0, 12.5, 13.0, 13.5, 14.0, 14.5, 15.0, 15.5, 16.0, 16.5, 17.0, 17.5, 18.0, 18.5, 19.0, 19.5, 20.0, 20.5, 21.0, 21.5, 22.0, 22.5, 23.0, 23.5, 24.0, 24.5, 25.0, 25.5, 26.0, 26.5, 27.0, 27.5, 28.0, 28.5, 29.0, 29.5, 30.0, 30.5, 31.0, 31.5, 32.0, 32.5, 33.0, 33.5, 34.0, 34.5, 35.0, 35.5, 36.0, 36.5, 37.0, 37.5, 38.0, 38.5, 39.0, 39.5, 40.0, 40.5, 41.0, 41.5, 42.0, 42.5, 43.0, 43.5, 44.0, 44.5, 45.0, 45.5, 46.0, 46.5, 47.0, 47.5, 48.0, 48.5, 49.0, 49.5, 50.0, 50.5, 51.0, 51.5, 52.0, 52.5, 53.0, 53.5, 54.0, 54.5, 55.0, 55.5, 56.0, 56.5, 57.0, 57.5, 58.0, 58.5, 59.0, 59.5, 60.0, 60.5, 61.0, 61.5, 62.0, 62.5, 63.0, 63.5, 64.0, 64.5, 65.0, 65.5, 66.0, 66.5, 67.0, 67.5, 68.0, 68.5, 69.0, 69.5, 70.0, 70.5, 71.0, 71.5, 72.0, 72.5, 73.0, 73.5, 74.0, 74.5, 75.0, 75.5, 76.0, 76.5, 77.0, 77.5, 78.0, 78.5, 79.0, 79.5, 80.0, 80.5, 81.0, 81.5, 82.0, 82.5, 83.0, 83.5, 84.0, 84.5, 85.0, 85.5, 86.0, 86.5, 87.0, 87.5, 88.0, 88.5, 89.0, 89.5, 90.0, 90.5, 91.0, 91.5, 92.0, 92.5, 93.0, 93.5, 94.0, 94.5, 95.0, 95.5, 96.0, 96.5, 97.0, 97.5, 98.0, 98.5, 99.0, 99.5, 100.0, 100.5, 101.0, 101.5, 102.0, 102.5, 103.0, 103.5, 104.0, 104.5, 105.0, 105.5, 106.0, 106.5, 107.0, 107.5, 108.0, 108.5, 109.0, 109.5, 110.0, 110.5, 111.0, 111.5, 112.0, 112.5, 113.0, 113.5, 114.0, 114.5, 115.0, 115.5, 116.0, 116.5, 117.0, 117.5, 118.0, 118.5, 119.0, 119.5, 120.0, 120.5, 121.0, 121.5, 122.0, 122.5, 123.0, 123.5, 124.0, 124.5, 125.0, 125.5, 126.0, 126.5, 127.0, 127.5, 128.0, 128.5, 129.0, 129.5, 130.0, 130.5, 131.0, 131.5, 132.0, 132.5, 133.0, 133.5, 134.0, 134.5, 135.0, 135.5, 136.0, 136.5, 137.0, 137.5, 138.0, 138.5, 139.0, 139.5, 140.0, 140.5, 141.0, 141.5, 142.0, 142.5, 143.0, 143.5, 144.0, 144.5, 145.0, 145.5, 146.0, 146.5, 147.0, 147.5, 148.0, 148.5, 149.0, 149.5, 150.0, 150.5, 151.0, 151.5, 152.0, 152.5, 153.0, 153.5, 154.0, 154.5, 155.0, 155.5, 156.0, 156.5, 157.0, 157.5, 158.0, 158.5, 159.0, 159.5, 160.0, 160.5, 161.0, 161.5, 162.0, 162.5, 163.0, 163.5, 164.0, 164.5, 165.0, 165.5, 166.0, 166.5, 167.0, 167.5, 168.0, 168.5, 169.0, 169.5, 170.0, 170.5, 171.0, 171.5, 172.0, 172.5, 173.0, 173.5, 174.0, 174.5, 175.0, 175.5, 176.0, 176.5, 177.0, 177.5, 178.0, 178.5, 179.0, 179.5, 180.0, 180.5, 181.0, 181.5, 182.0, 182.5, 183.0, 183.5, 184.0, 184.5, 185.0, 185.5, 186.0, 186.5, 187.0, 187.5, 188.0, 188.5, 189.0, 189.5, 190.0, 190.5, 191.0, 191.5, 192.0, 192.5, 193.0, 193.5, 194.0, 194.5, 195.0, 195.5, 196.0, 196.5, 197.0, 197.5, 198.0, 198.5, 199.0, 199.5, 200.0, 200.5, 201.0, 201.5, 202.0, 202.5, 203.0, 203.5, 204.0, 204.5, 205.0, 205.5, 206.0, 206.5, 207.0, 207.5, 208.0, 208.5, 209.0, 209.5, 210.0, 210.5, 211.0, 211.5, 212.0, 212.5, 213.0, 213.5, 214.0, 214.5, 215.0, 215.5, 216.0, 216.5, 217.0, 217.5, 218.0, 218.5, 219.0, 219.5, 220.0, 220.5, 221.0, 221.5, 222.0, 222.5, 223.0, 223.5, 224.0, 224.5, 225.0, 225.5, 226.0, 226.5, 227.0, 227.5, 228.0, 228.5, 229.0, 229.5, 230.0, 230.5, 231.0, 231.5, 232.0, 232.5, 233.0, 233.5, 234.0, 234.5, 235.0, 235.5, 236.0, 236.5, 237.0, 237.5, 238.0, 238.5, 239.0, 239.5, 240.0, 240.5, 241.0, 241.5, 242.0, 242.5, 243.0, 243.5, 244.0, 244.5, 245.0, 245.5, 246.0, 246.5, 247.0, 247.5, 248.0, 248.5, 249.0, 249.5, 250.0, 250.5, 251.0, 251.5, 252.0, 252.5, 253.0, 253.5, 254.0, 254.5, 255.0, 255.5, 256.0, 256.5, 257.0, 257.5, 258.0, 258.5, 259.0, 259.5, 260.0, 260.5, 261.0, 261.5, 262.0, 262.5, 263.0, 263.5, 264.0, 264.5, 265.0, 265.5, 266.0, 266.5, 267.0, 267.5, 268.0, 268.5, 269.0, 269.5, 270.0, 270.5, 271.0, 271.5, 272.0, 272.5, 273.0, 273.5, 274.0, 274.5, 275.0, 275.5, 276.0, 276.5, 277.0, 277.5, 278.0, 278.5, 279.0, 279.5, 280.0, 280.5, 281.0, 281.5, 282.0, 282.5, 283.0, 283.5, 284.0, 284.5, 285.0, 285.5, 286.0, 286.5, 287.0, 287.5, 288.0, 288.5, 289.0, 289.5, 290.0, 290.5, 291.0, 291.5, 292.0, 292.5, 293.0, 293.5, 294.0, 294.5, 295.0, 295.5, 296.0, 296.5, 297.0, 297.5, 298.0, 298.5, 299.0, 299.5, 300.0, 300.5, 301.0, 301.5, 302.0, 302.5, 303.0, 303.5, 304.0, 304.5, 305.0, 305.5, 306.0, 306.5, 307.0, 307.5, 308.0



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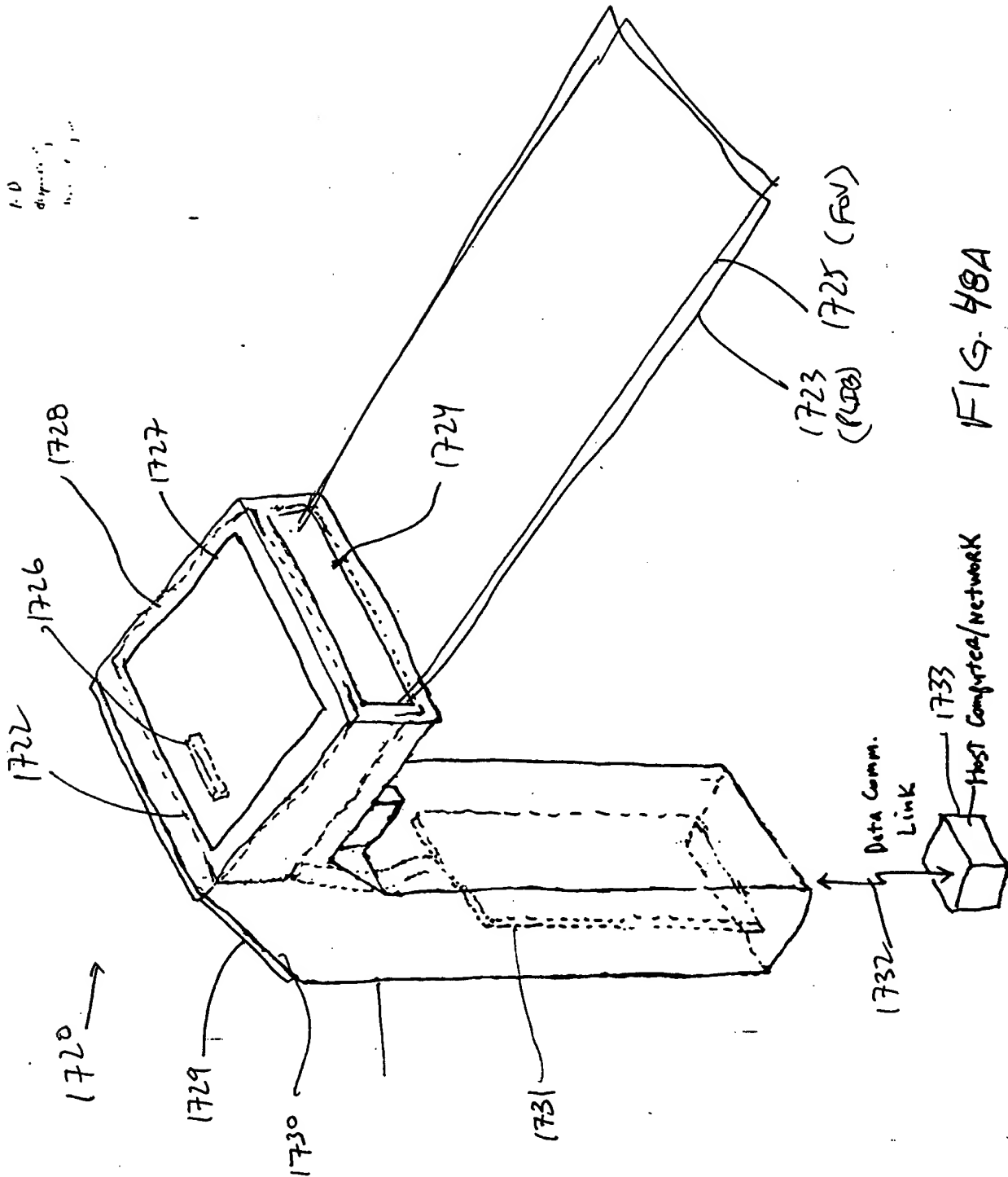


FIG. 48A

0000585-12101

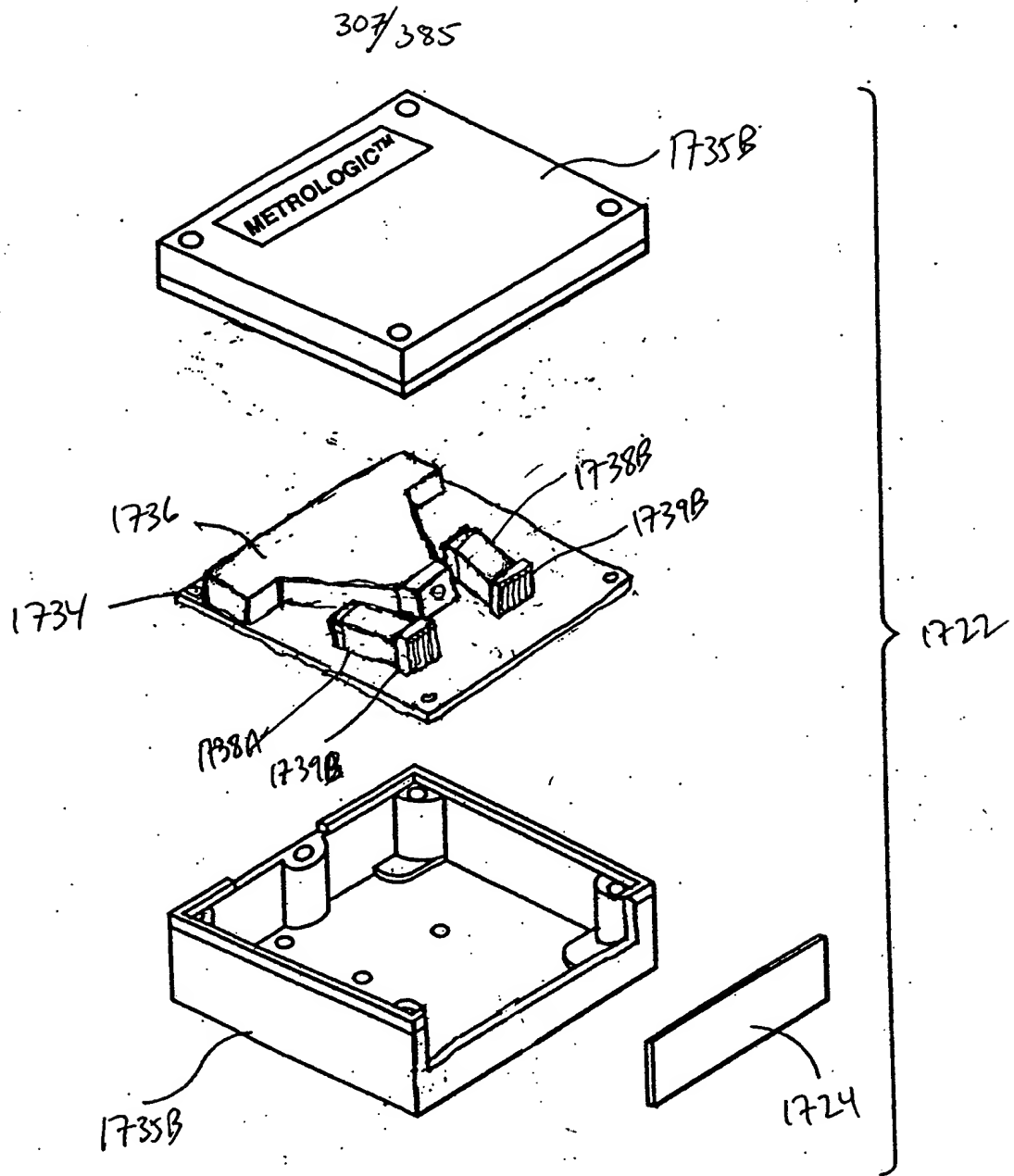


FIG. 48B

000055-41401
REF ID: A550660

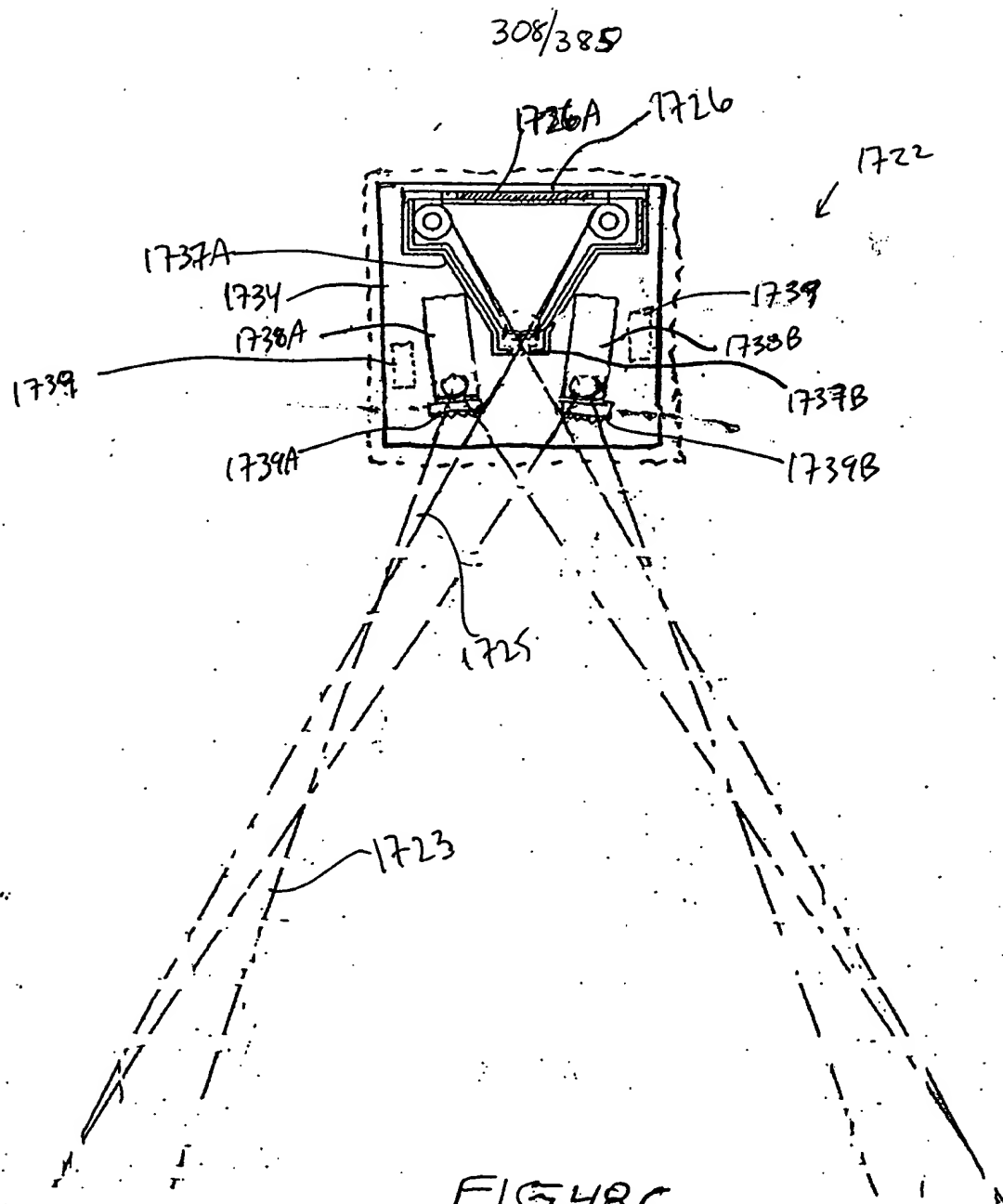
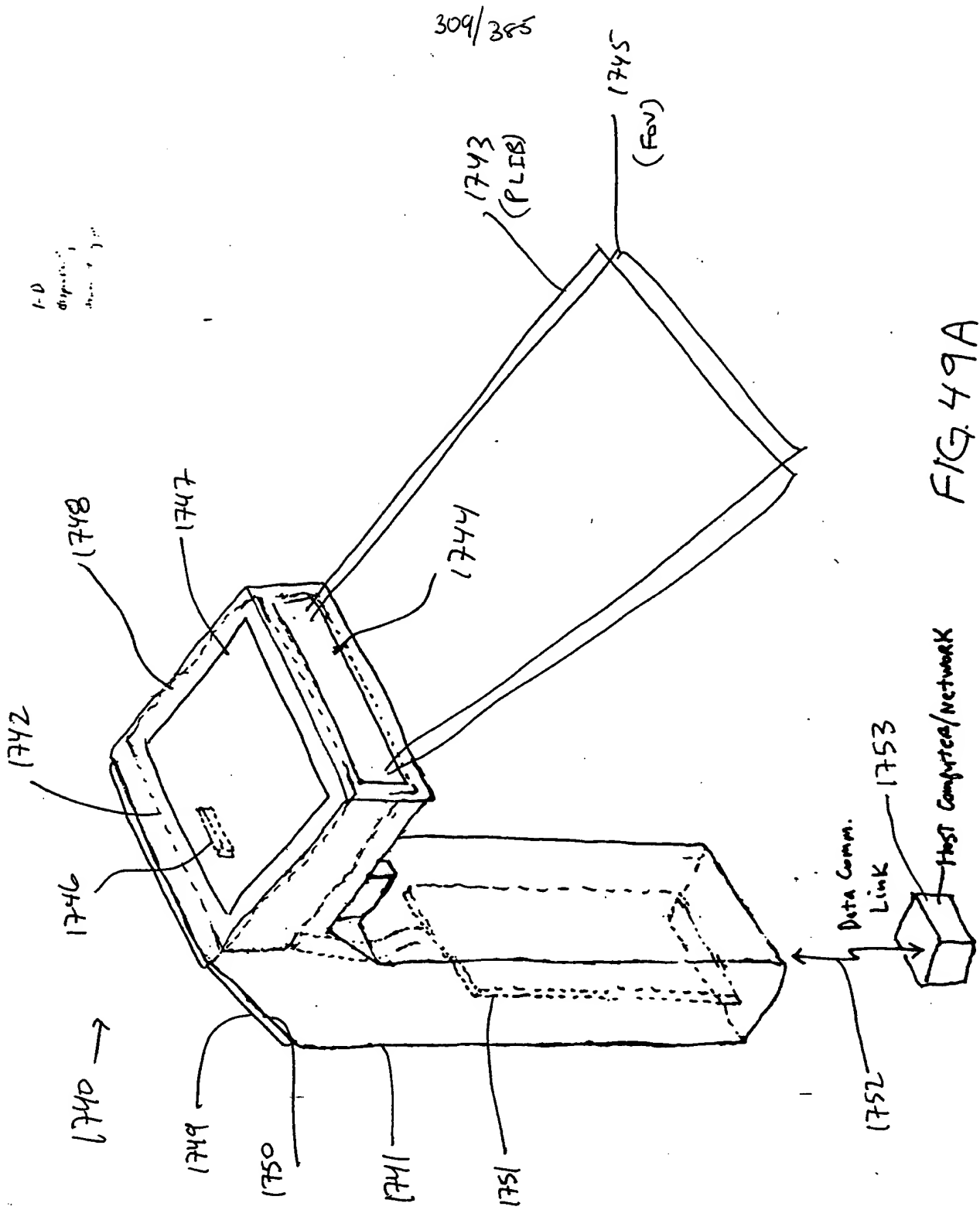


FIG. 48C

FIG. 49A



1-D
display,
image, etc.

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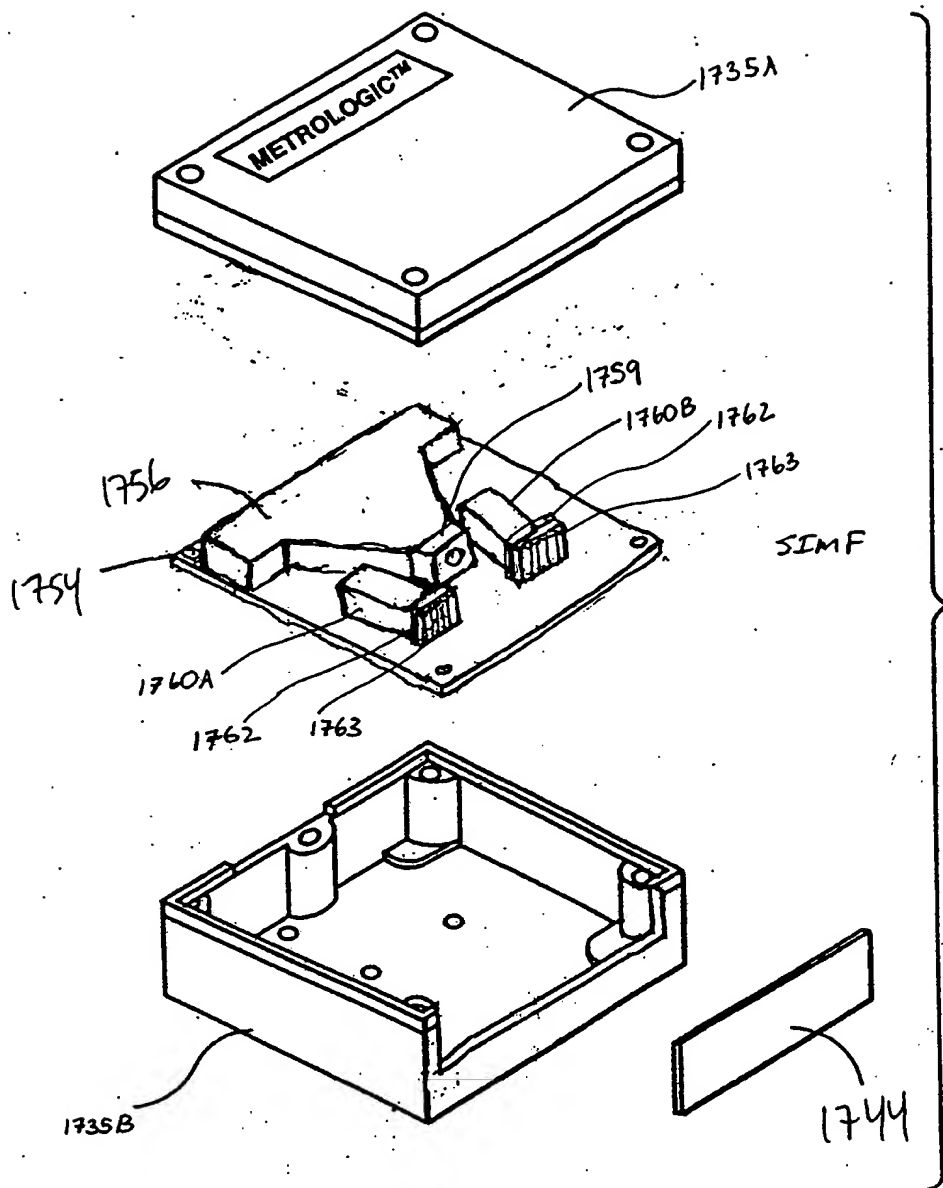


FIG. 49B

00000585-112101

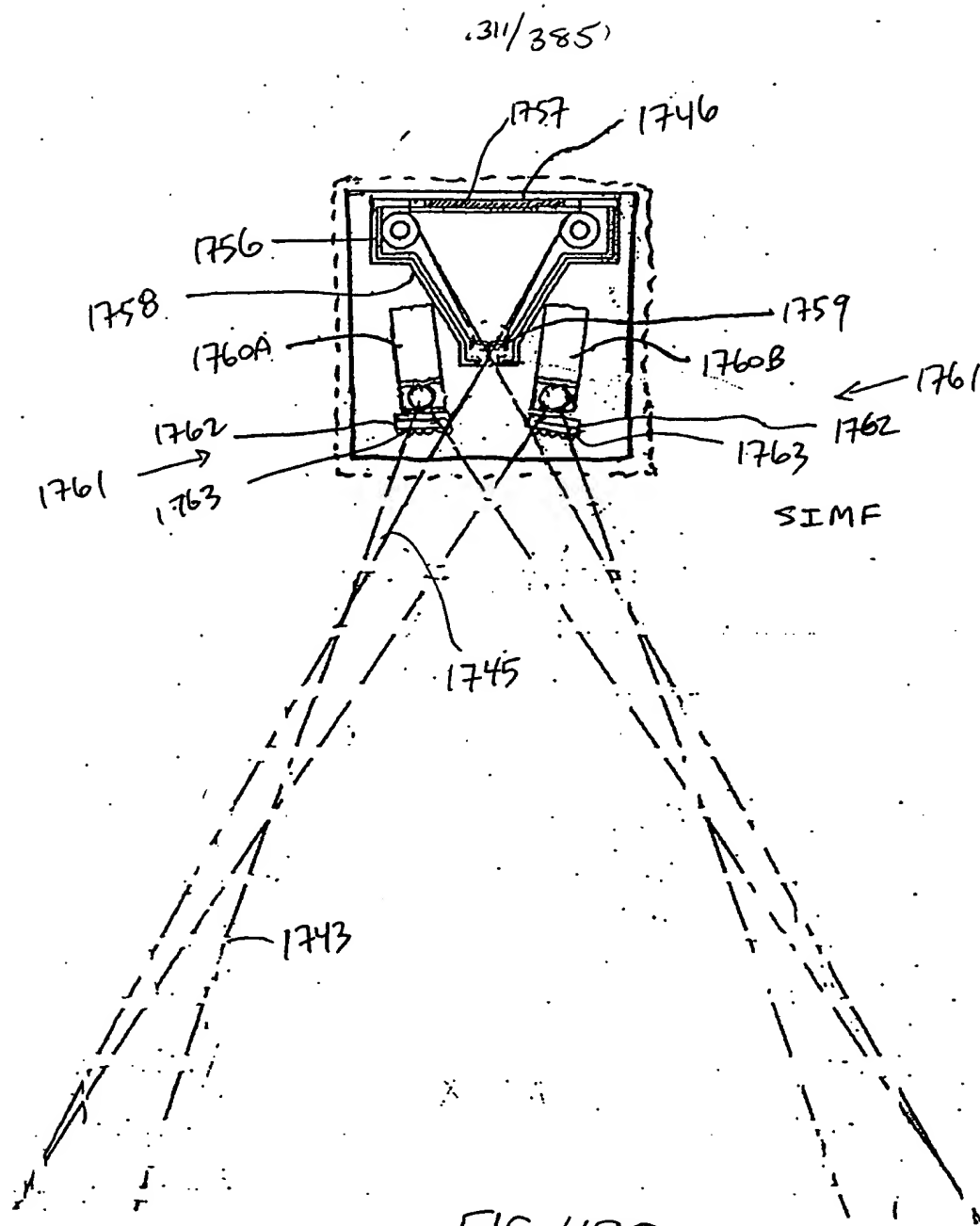


FIG.49C

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1-D
display
area

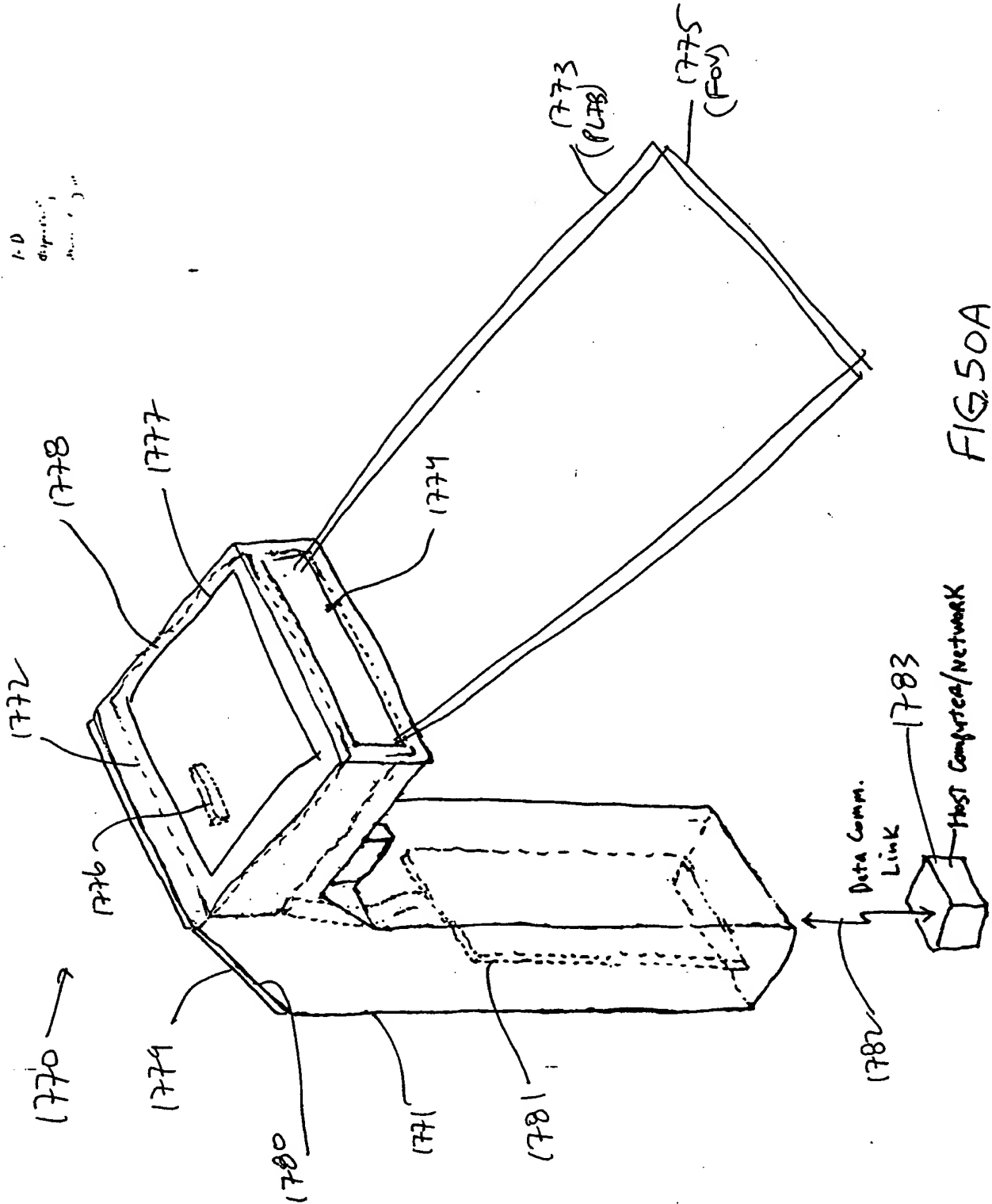


FIG. 50A

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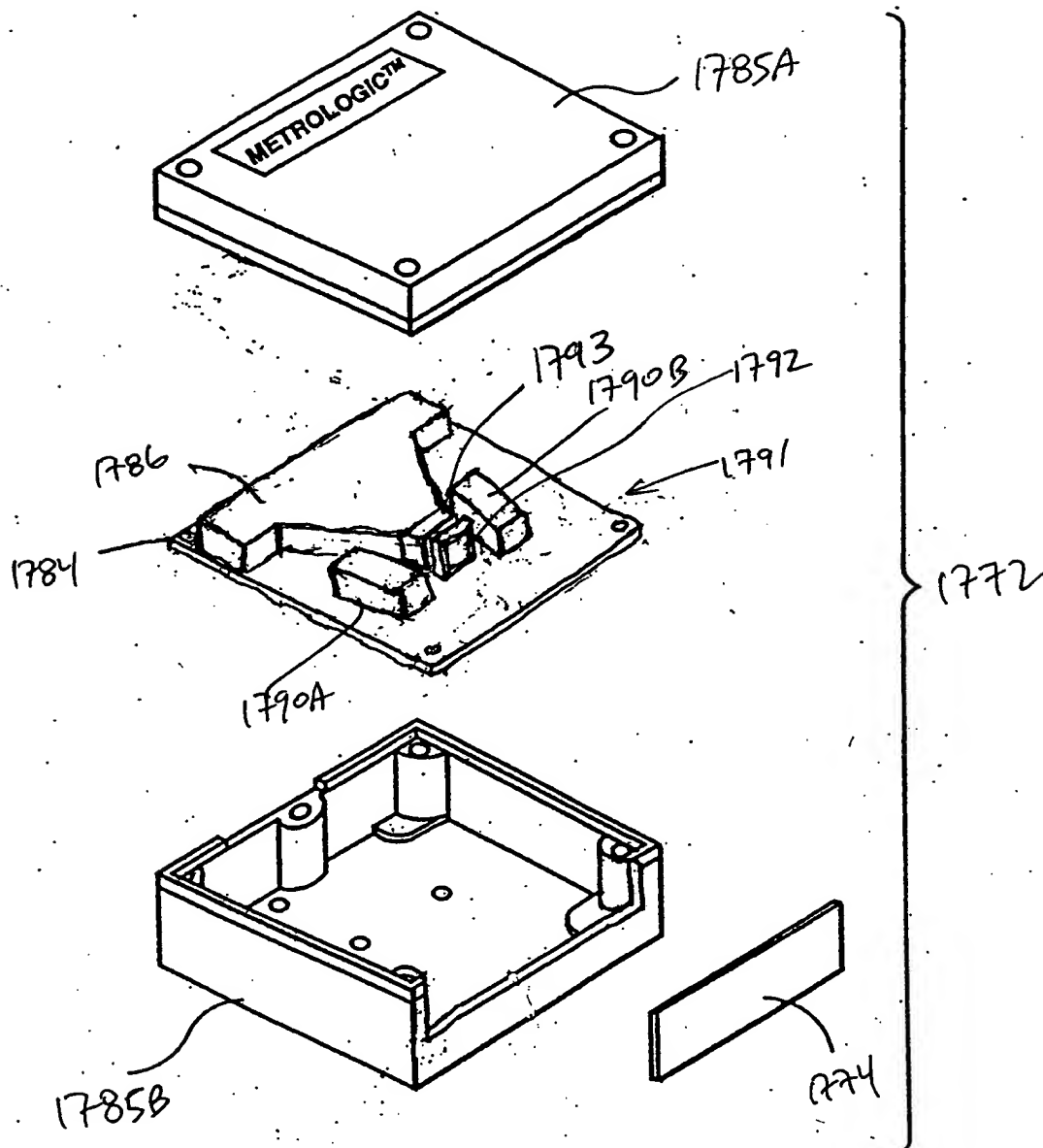


FIG. 50B

00000535 112104

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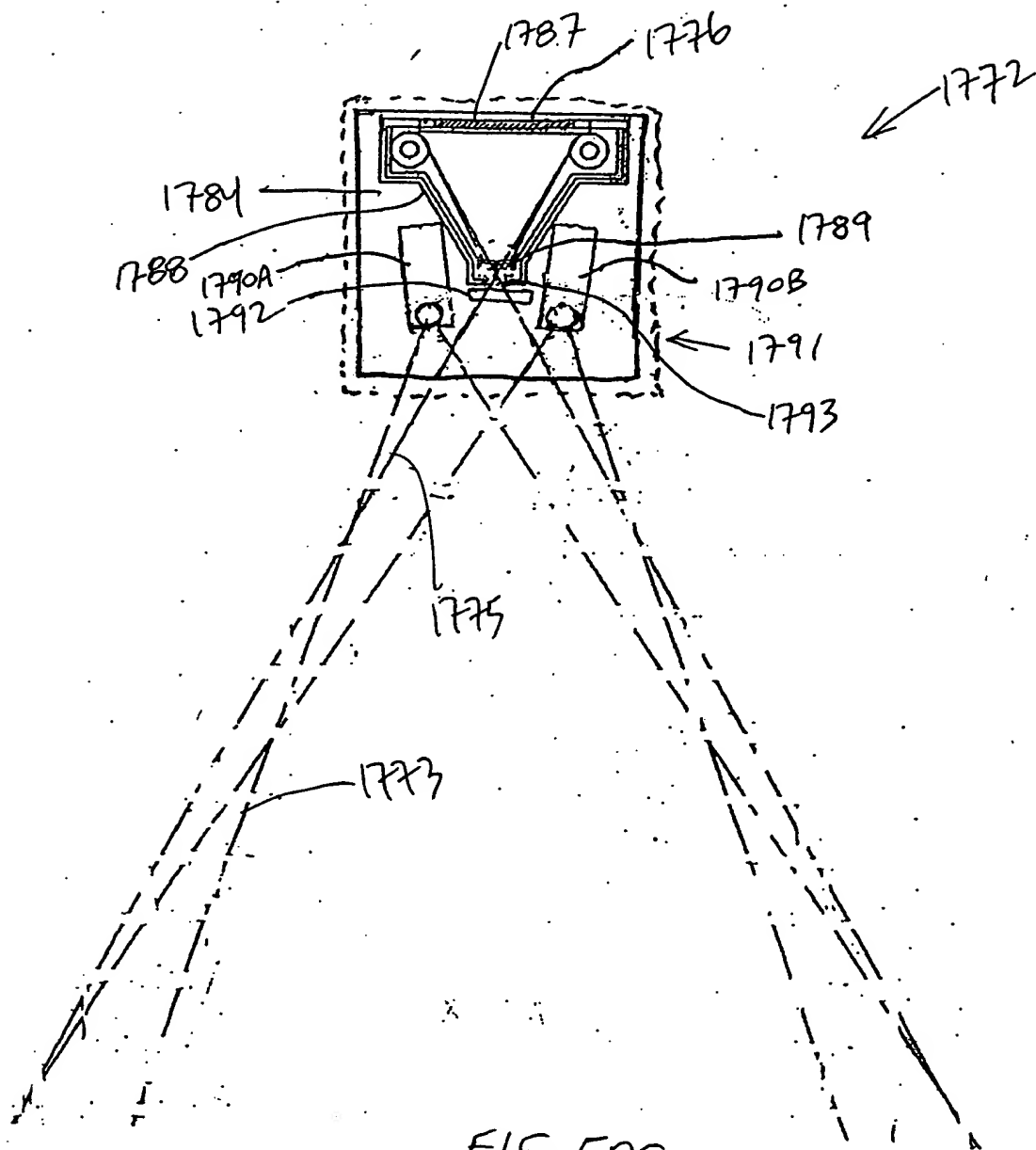
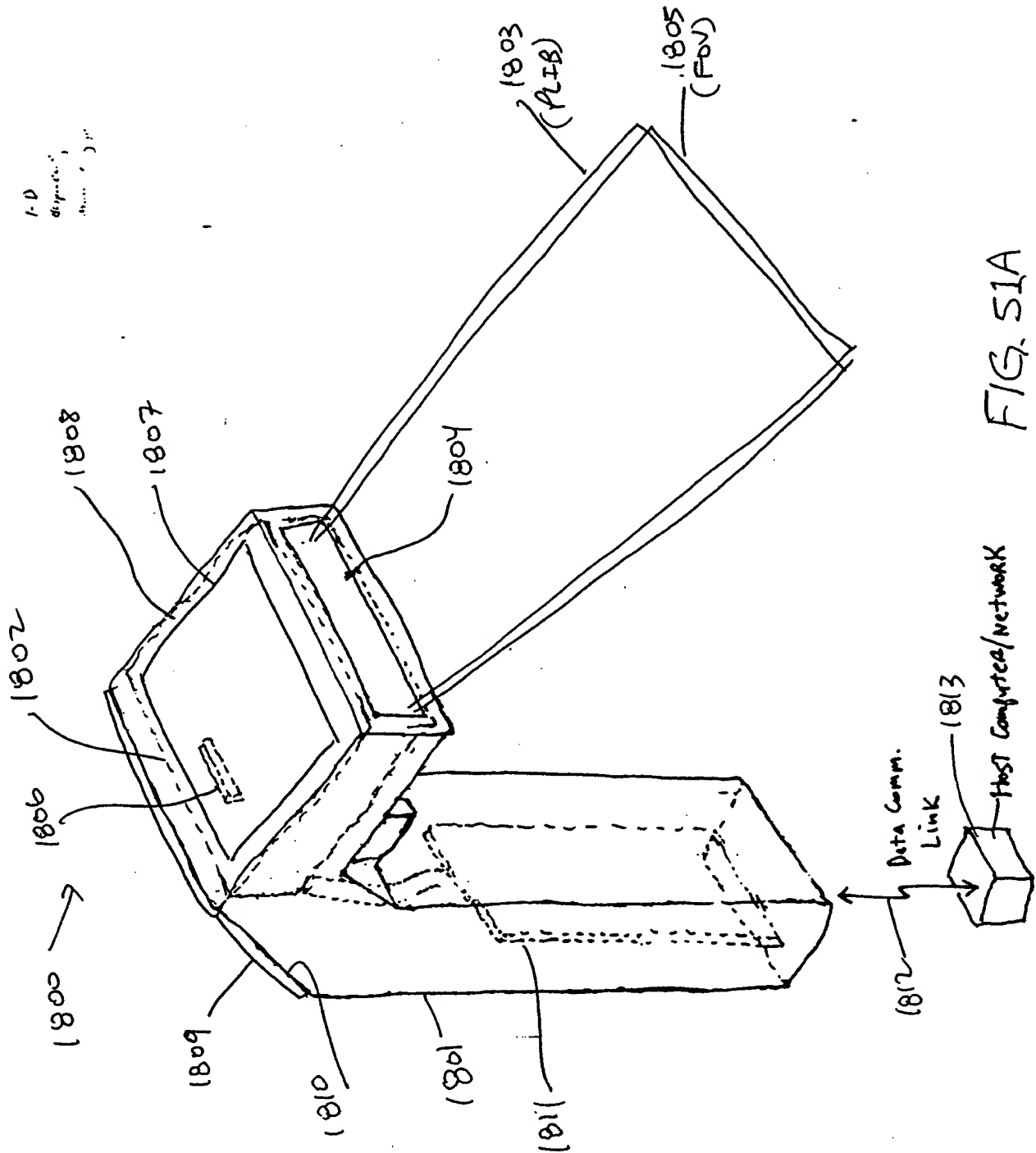


FIG. 50C

FIG. 51A



000055 14101

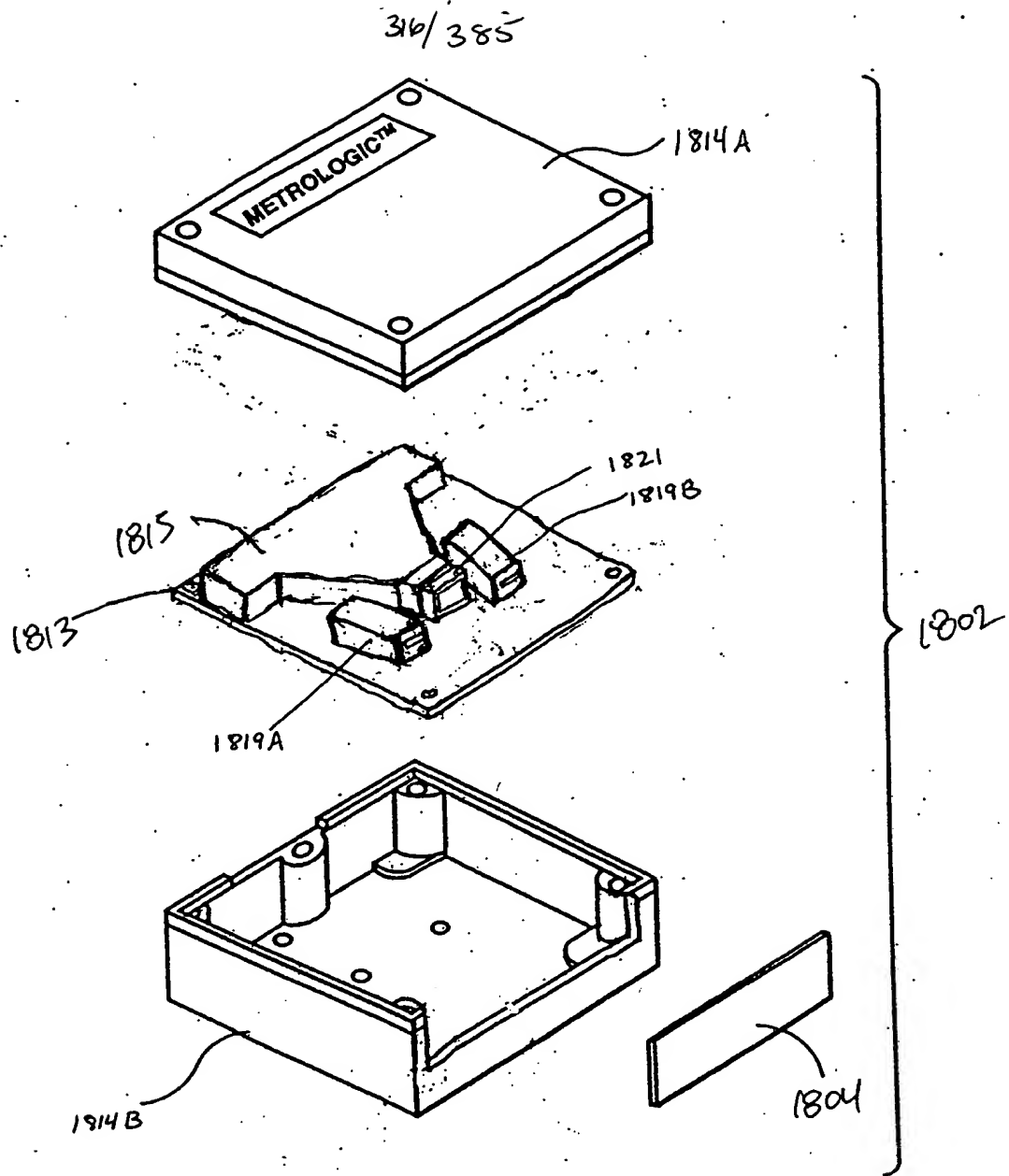
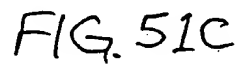
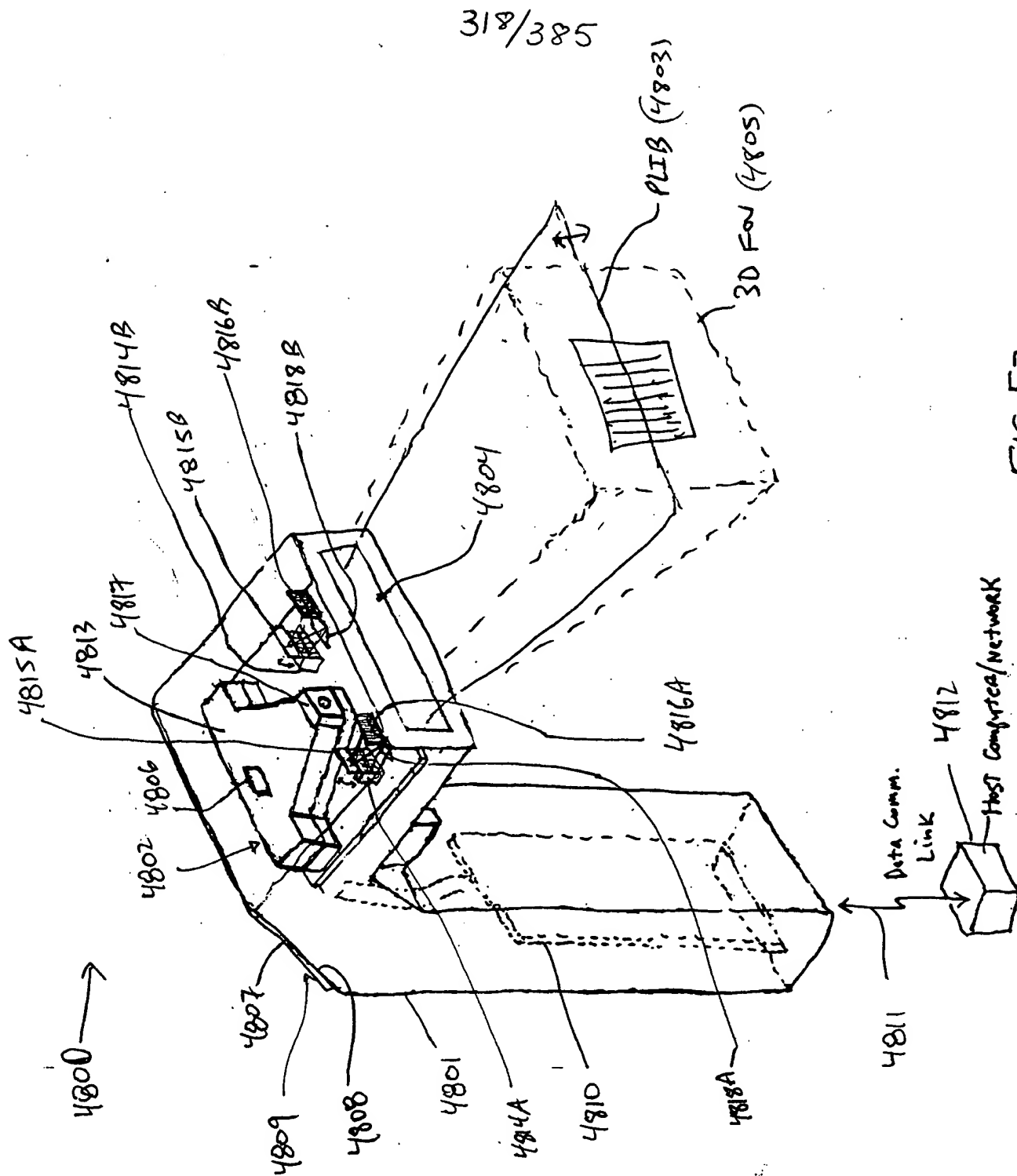


FIG. 51B

1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	2110	2111	2112	2113	2114	2115	2116	2117	2118	2119	2120	2121	2122	2123	2124	2125	2126	2127	2128	2129	2130	2131	2132	2133	2134	2135	2136	2137	2138	2139	2140	2141	2142	2143	2144	2145	2146	2147	2148	2149	2150	2151	2152	2153	2154	2155	2156	2157	2158	2159	2160	2161	2162	2163	2164	2165	2166	2167	2168	2169	2170	2171	2172	2173	2174	2175	2176	2177	2178	2179	2180	2181	2182	2183	2184	2185	2186	2187	2188	2189	2190	2191	2192	2193	2194	2195	2196	2197	2198	2199	2200	2201	2202	2203	2204	2205	2206	2207	2208	2209	2210	2211	2212	2213	2214	2215	2216	2217	2218	2219	2220	2221	2222	2223	2224	2225	2226	2227	2228	2229	2230	2231	2232	2233	2234	2235	2236	2237	2238	2239	2240	2241	2242	2243	2244	2245	2246	2247	2248	2249	2250	2251	2252	2253	2254	2255	2256	2257	2258	2259	2260	2261	2262	2263	2264	2265	2266	2267	2268	2269	2270	2271	2272	2273	2274	2275	2276	2277	2278	2279	2280	2281	2282	2283	2284	2285	2286	2287	2288	2289	2290	2291	2292	2293	2294	2295	2296	2297	2298	2299	2300	2301	2302	2303	2304	2305	2306	2307	2308	2309	2310	2311	2312	2313	2314	2315	2316	2317	2318	2319	2320	2321	2322	2323	2324	2325	2326	2327	2328	2329	2330	2331	2332	2333	2334	2335	2336	2337	2338	2339	2340	2341	2342	2343	2344	2345	2346	2347	2348	2349	2350	2351	2352	2353	2354	2355	2356	2357	2358</
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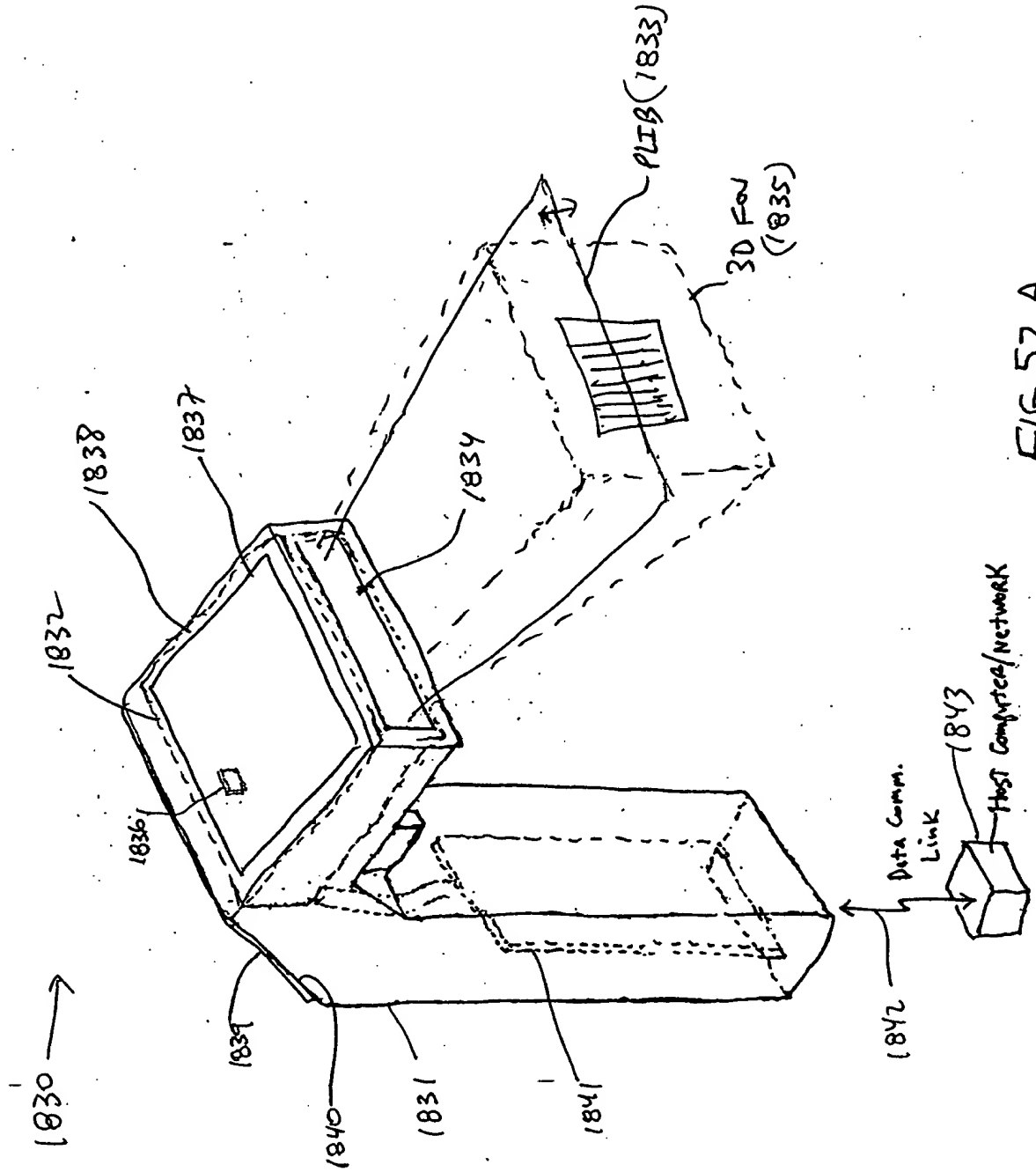


FIG. 52A

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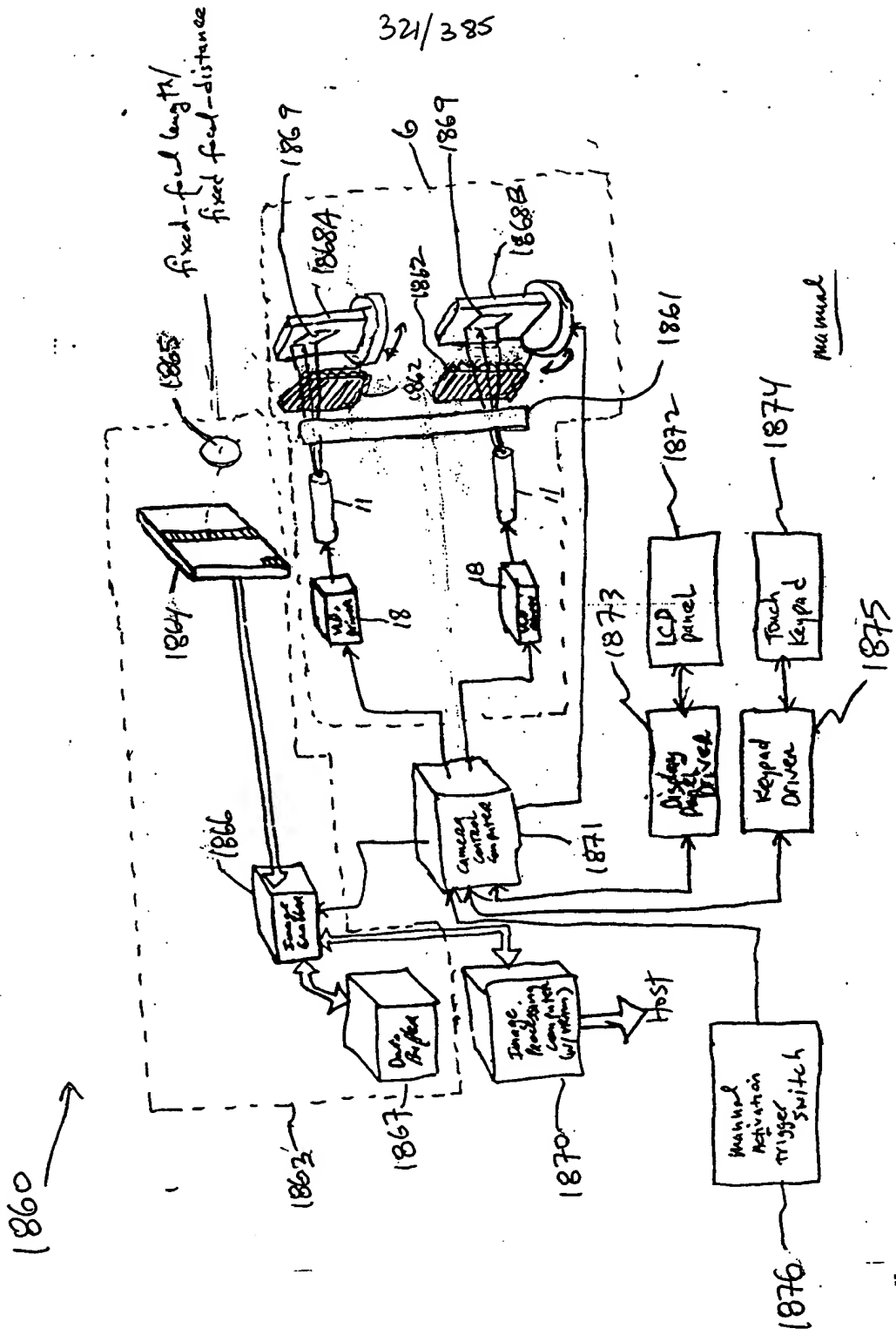
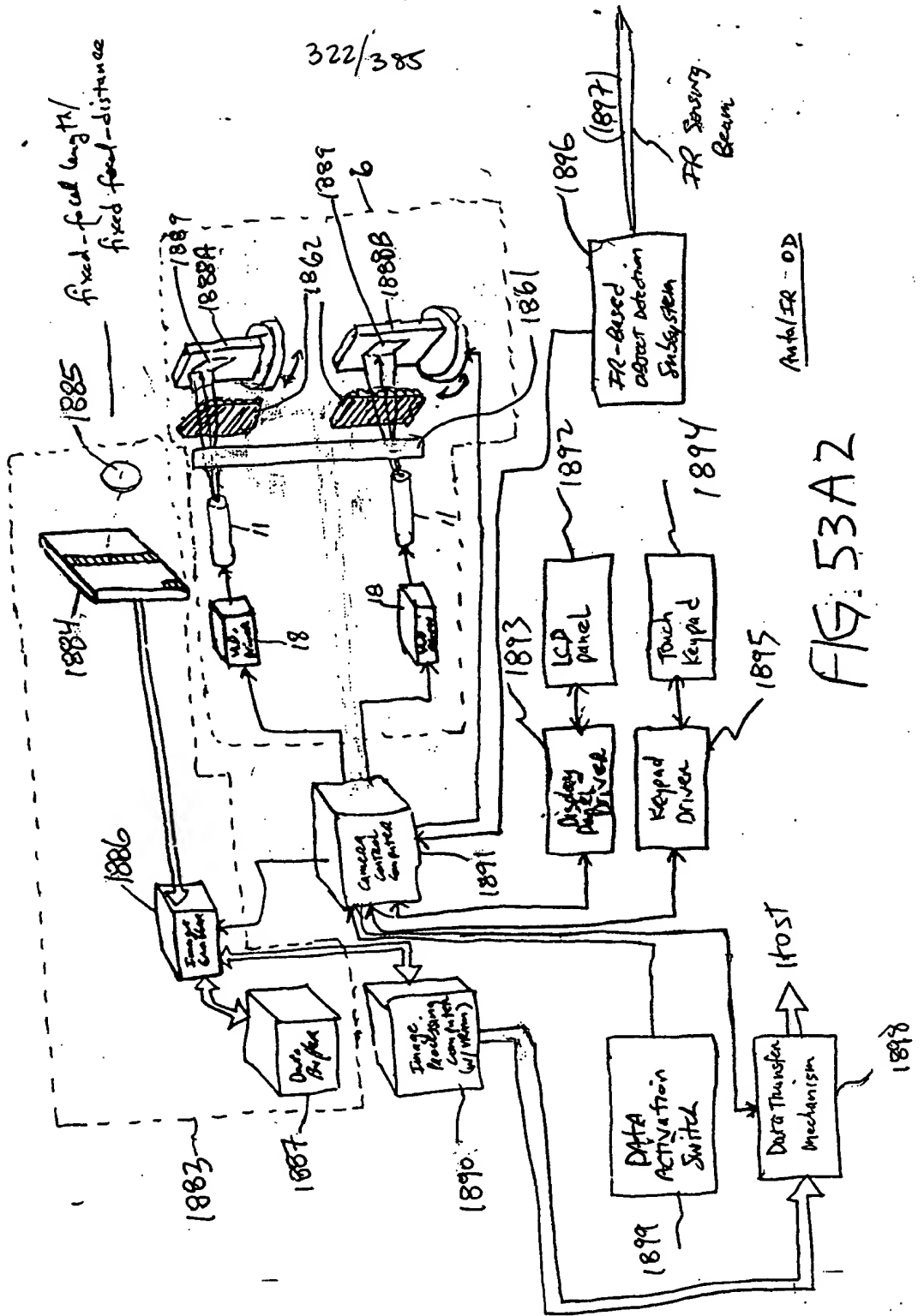


FIG. 53A1

1880



2002

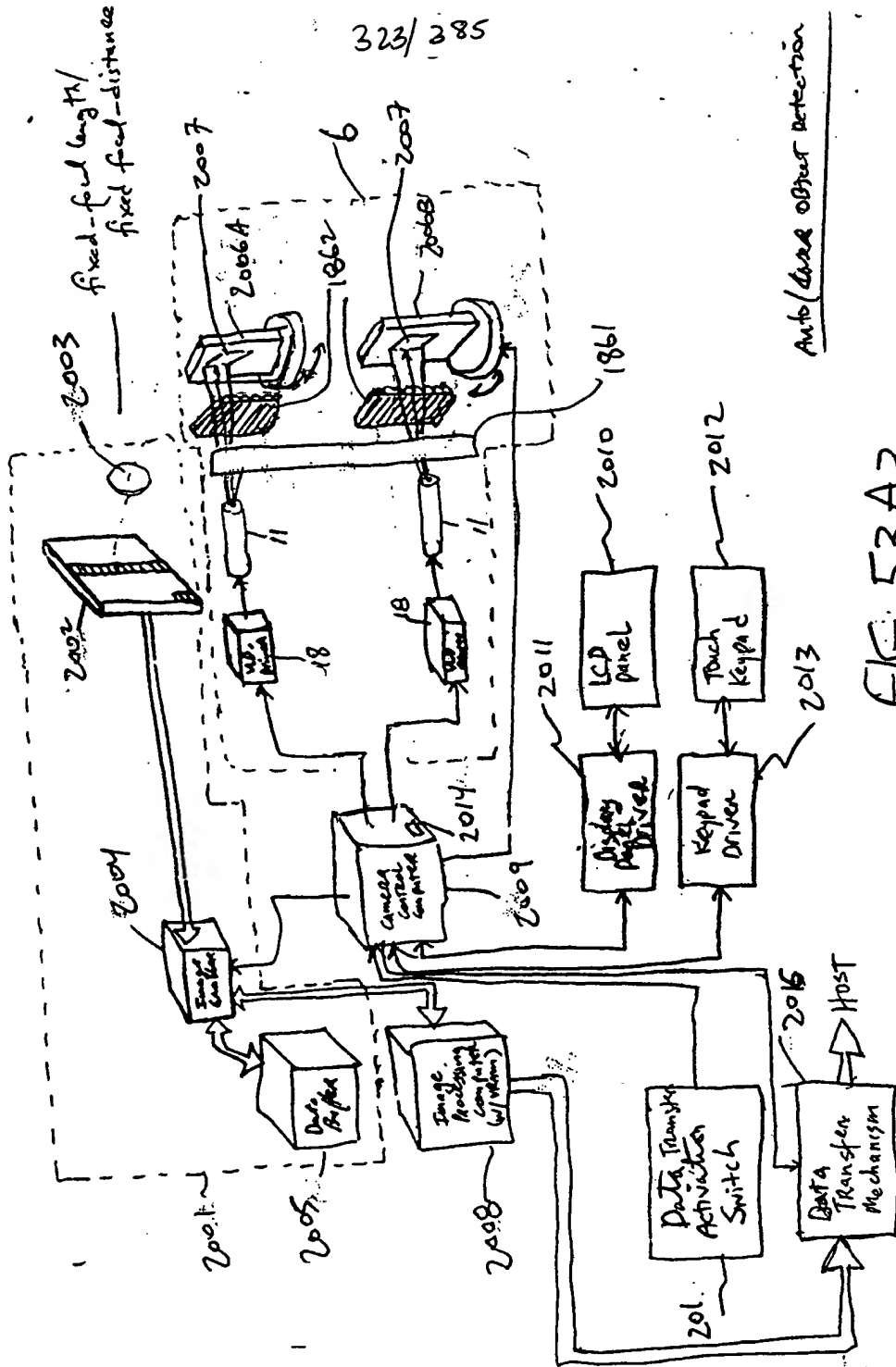


FIG. 53A3

2040

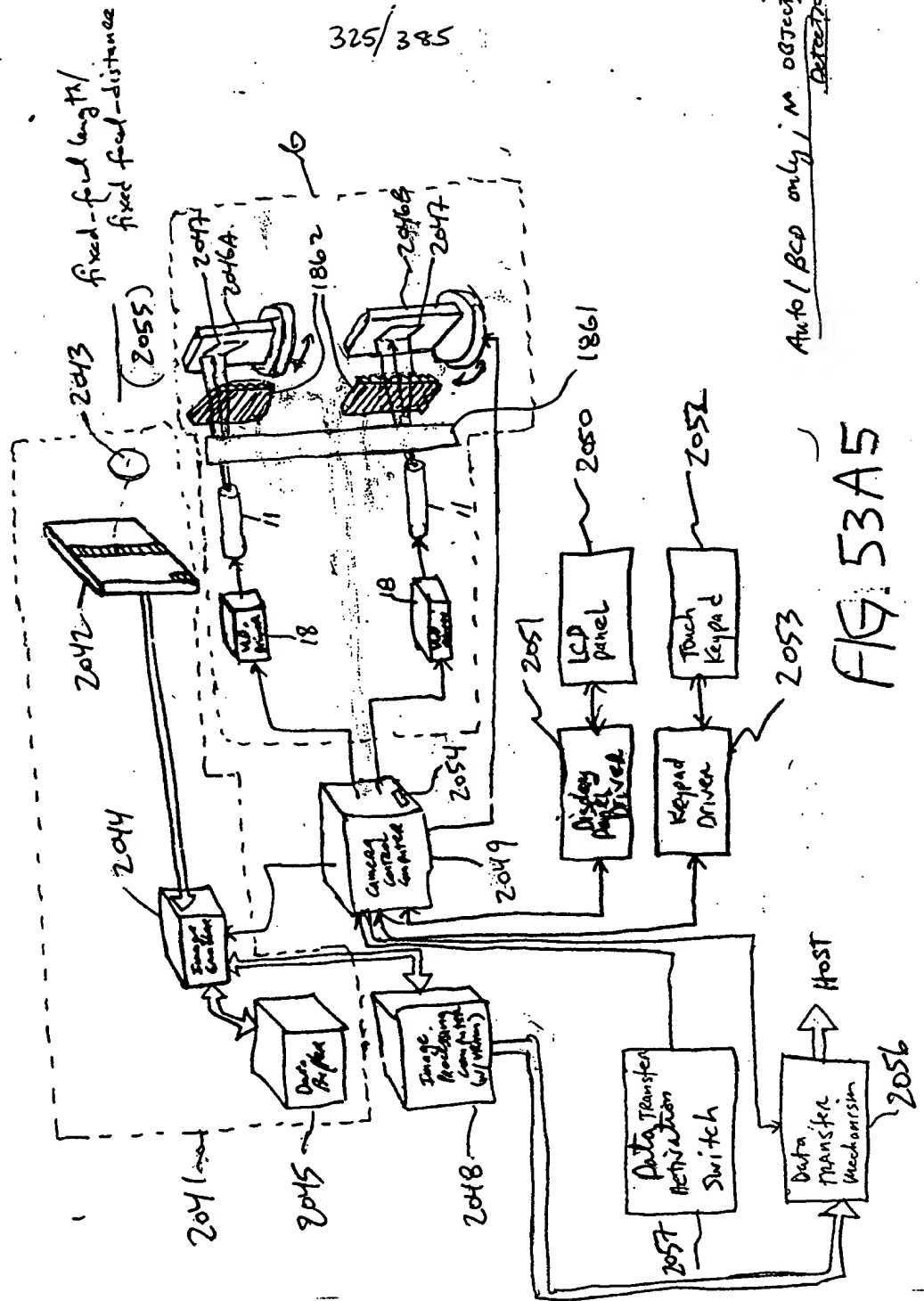
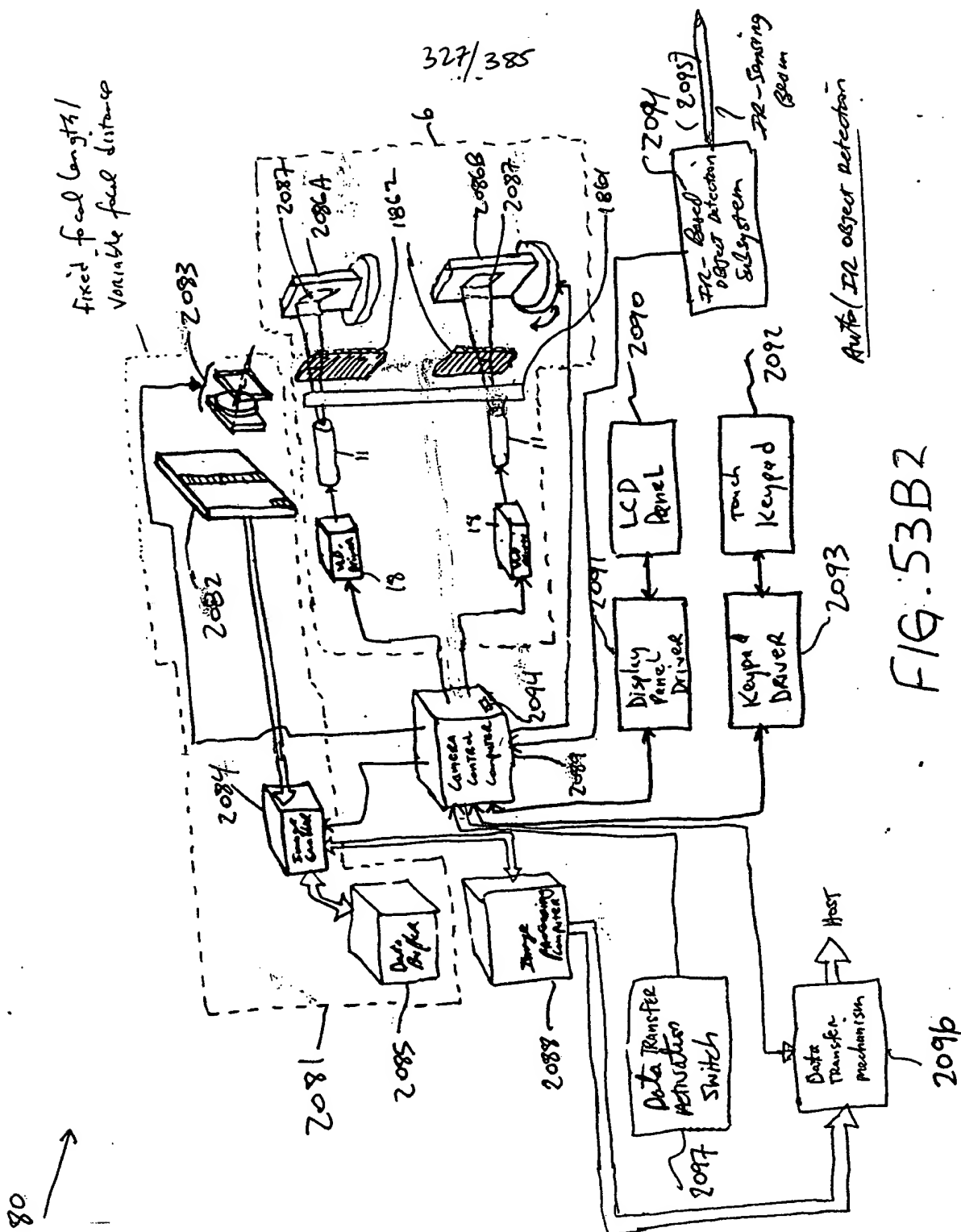
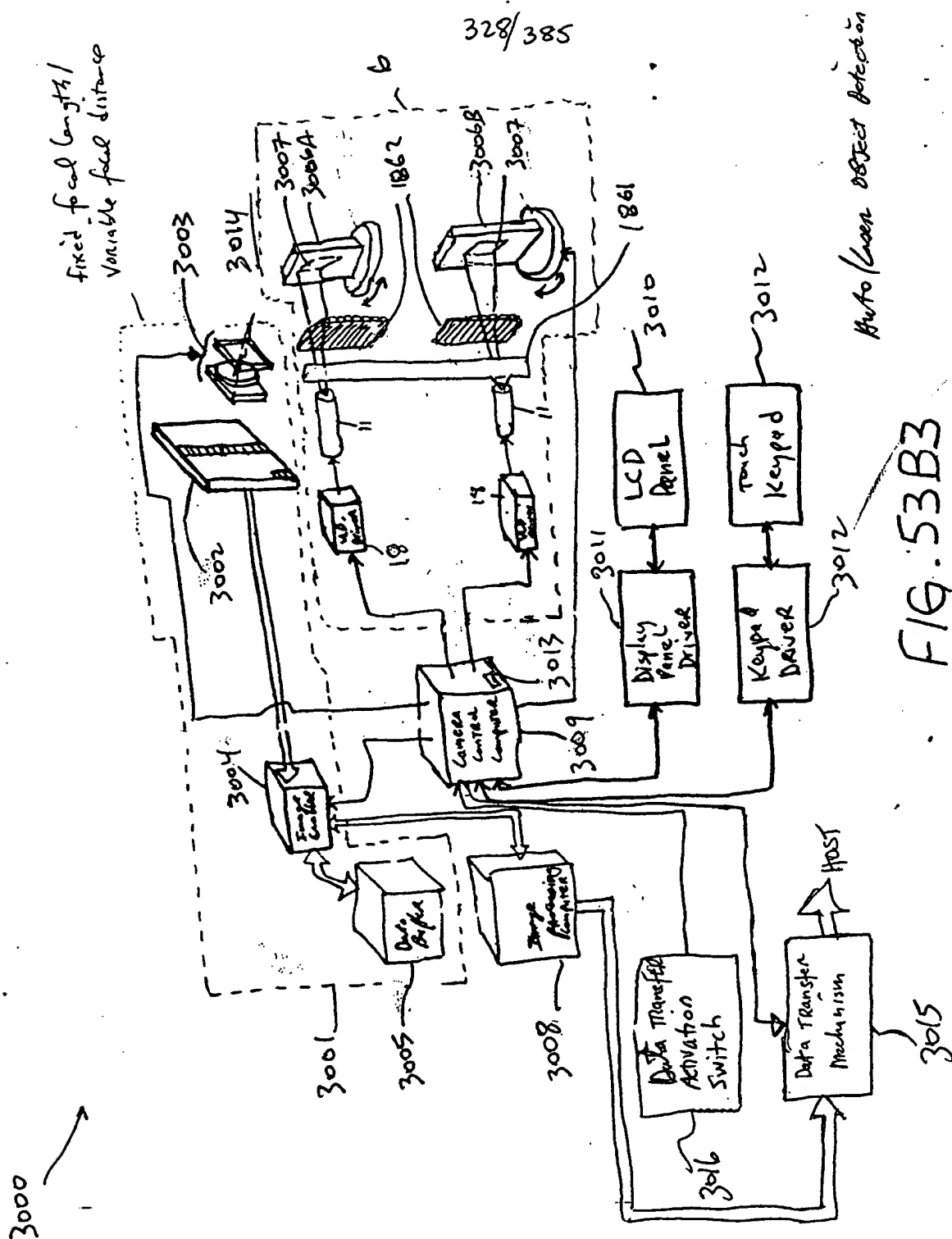
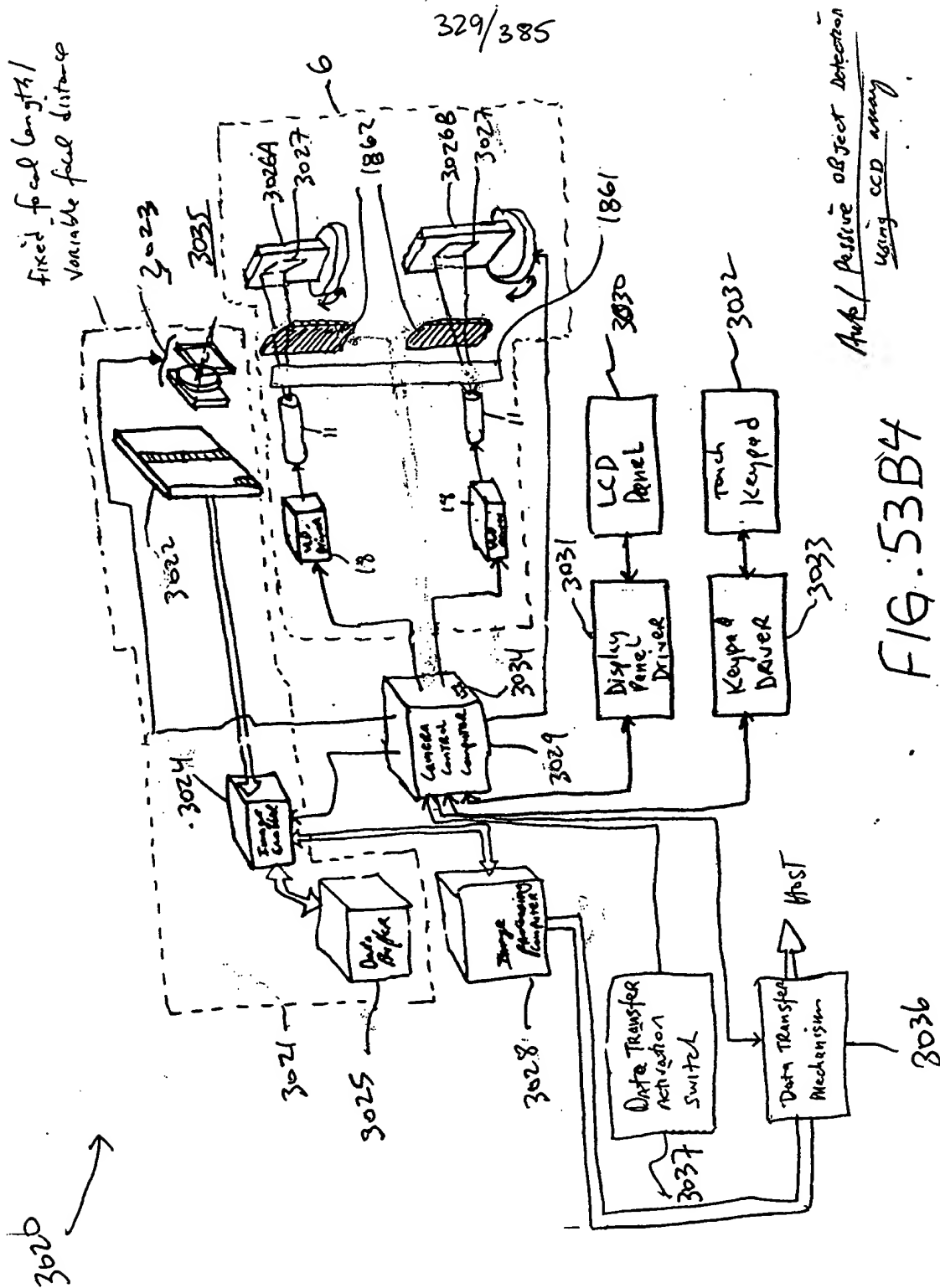


FIG. 53A5

2080



[illegible]



Copy

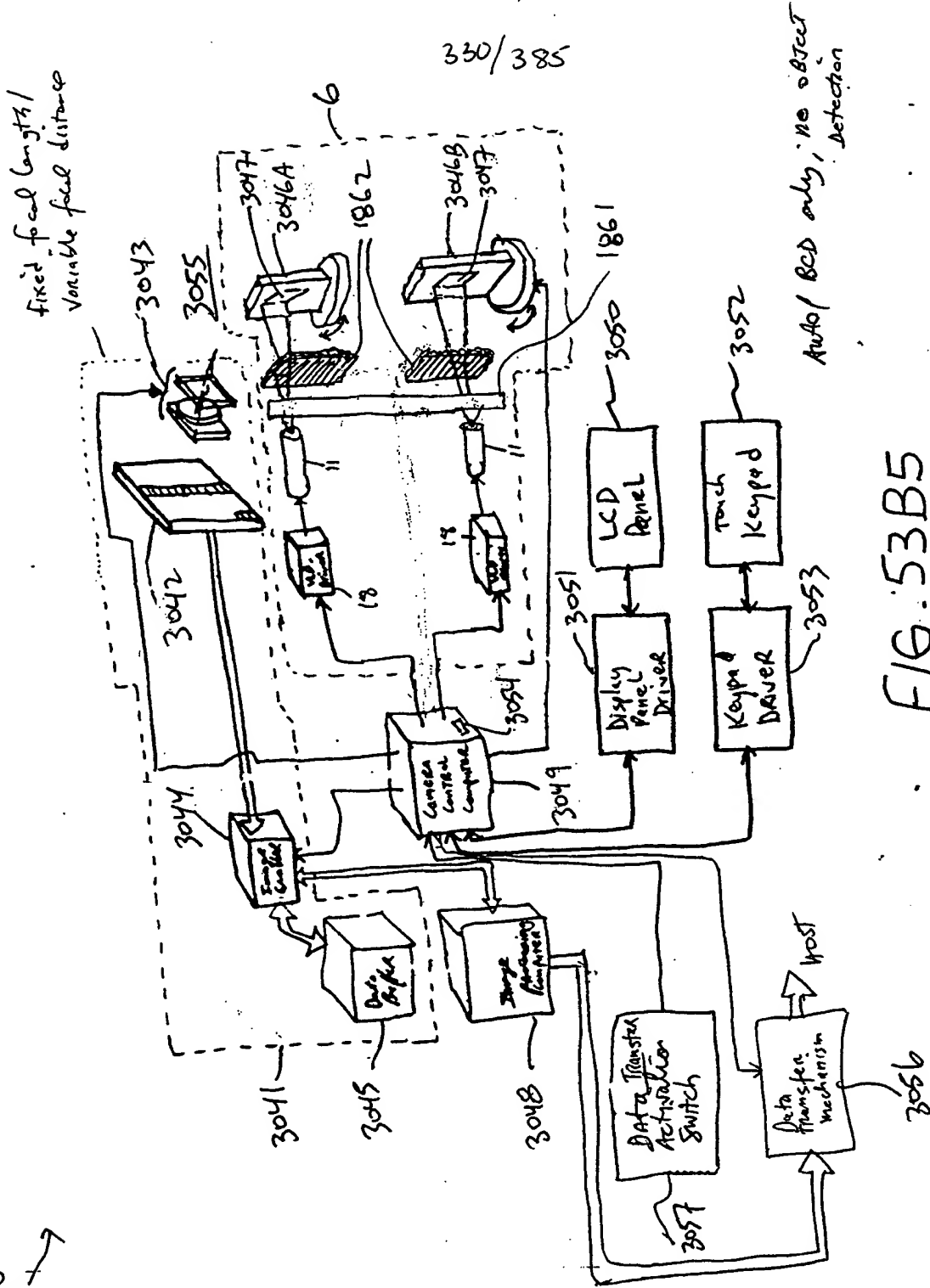
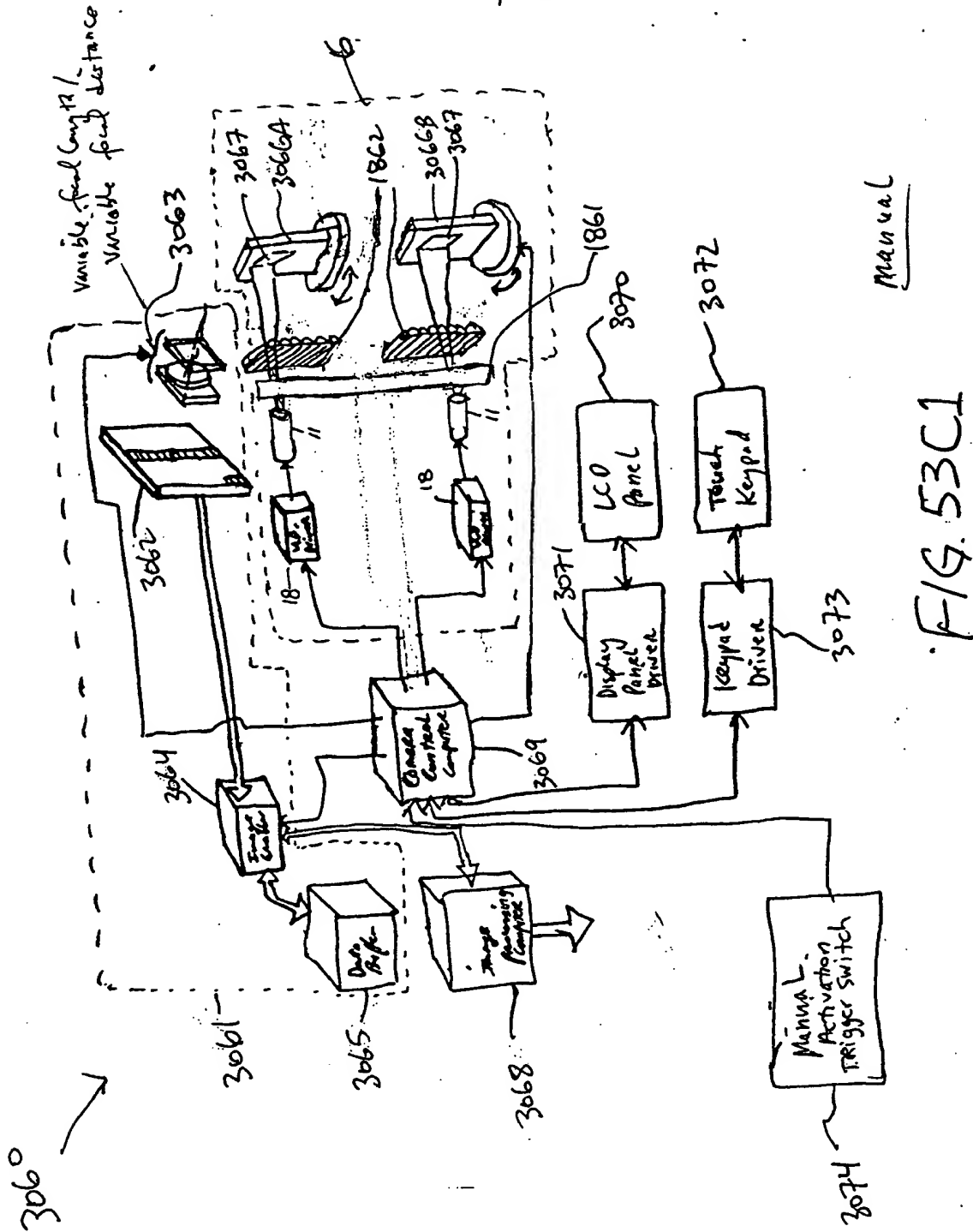
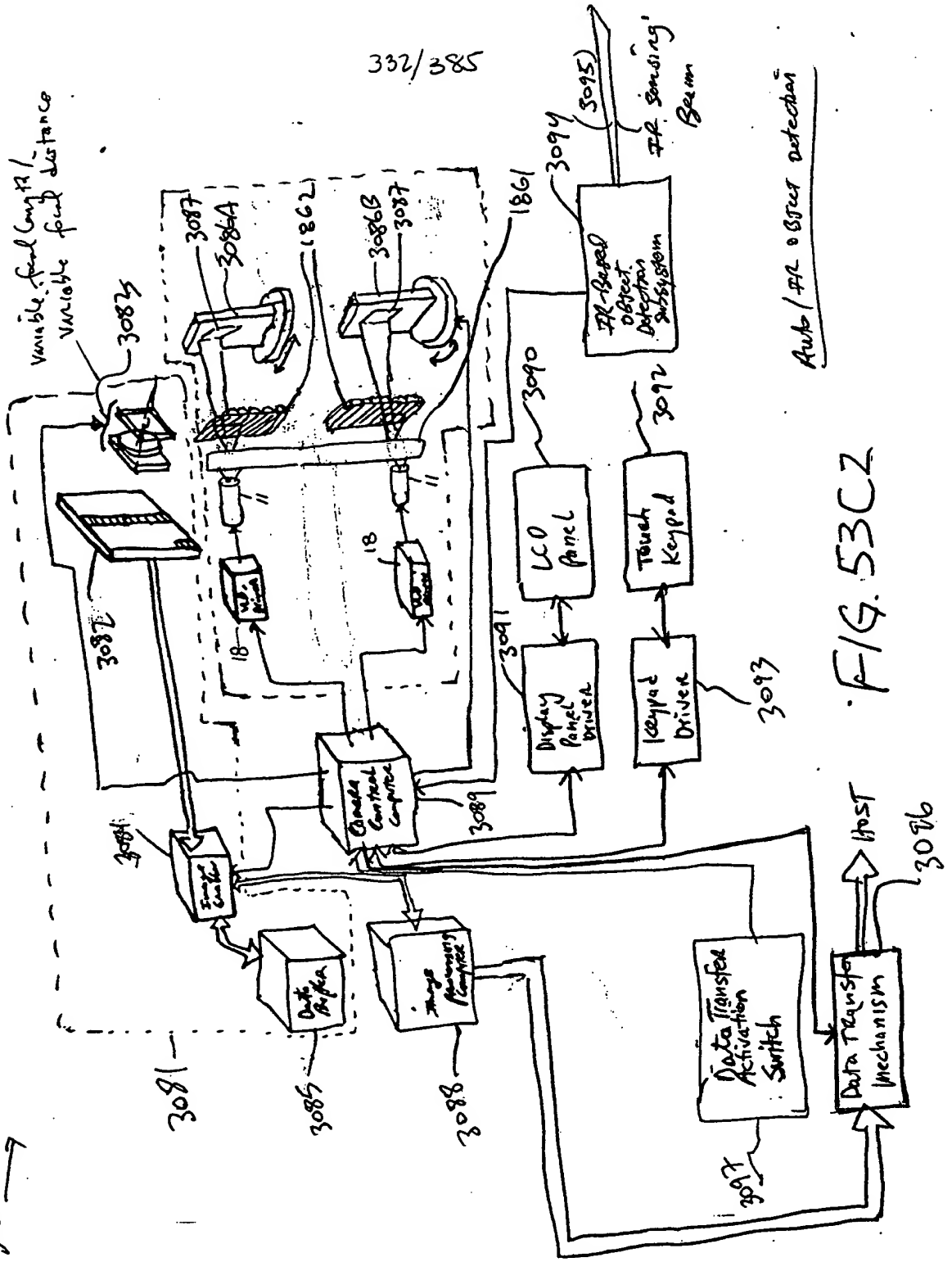


FIG. 53B5



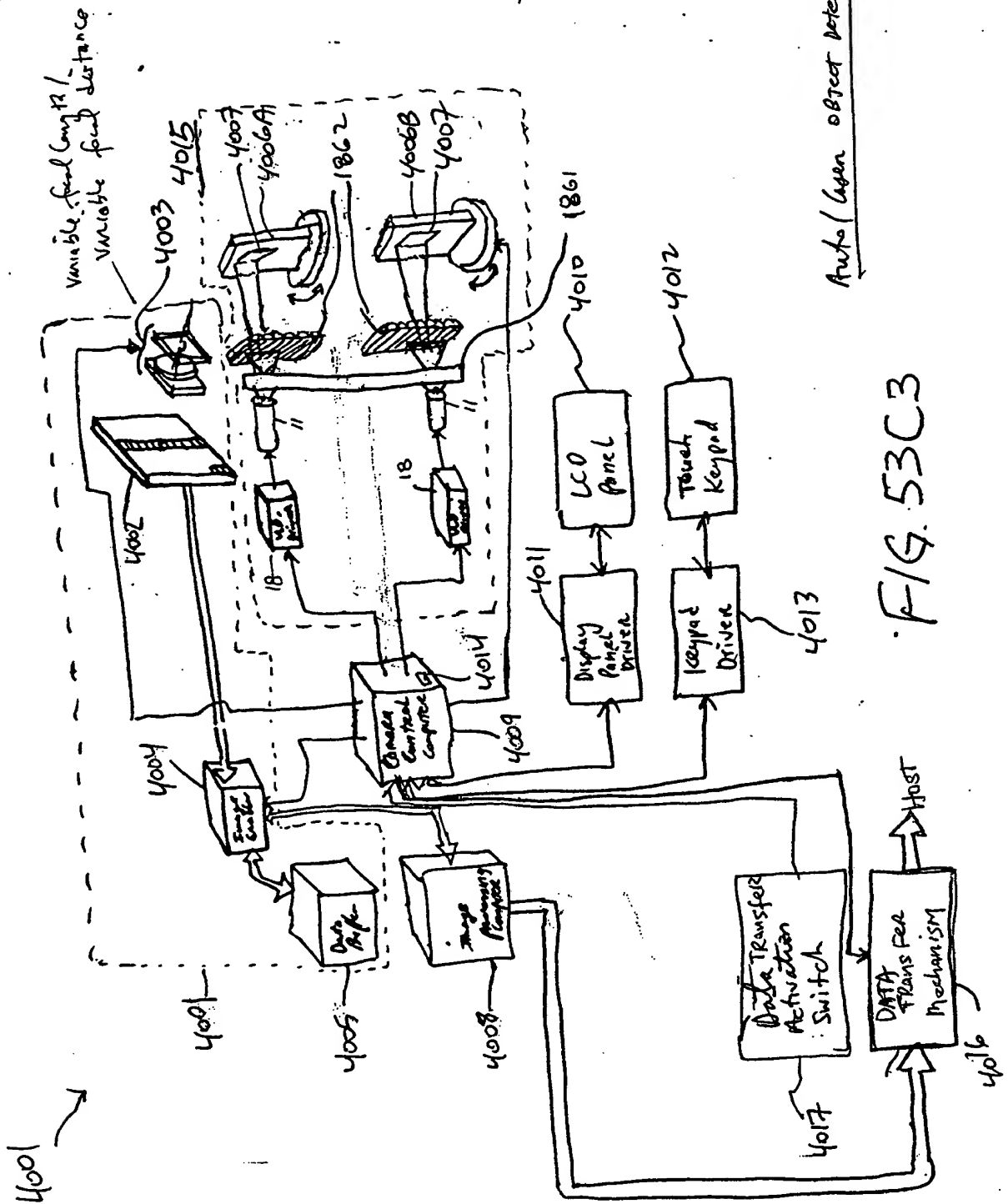
3080 →

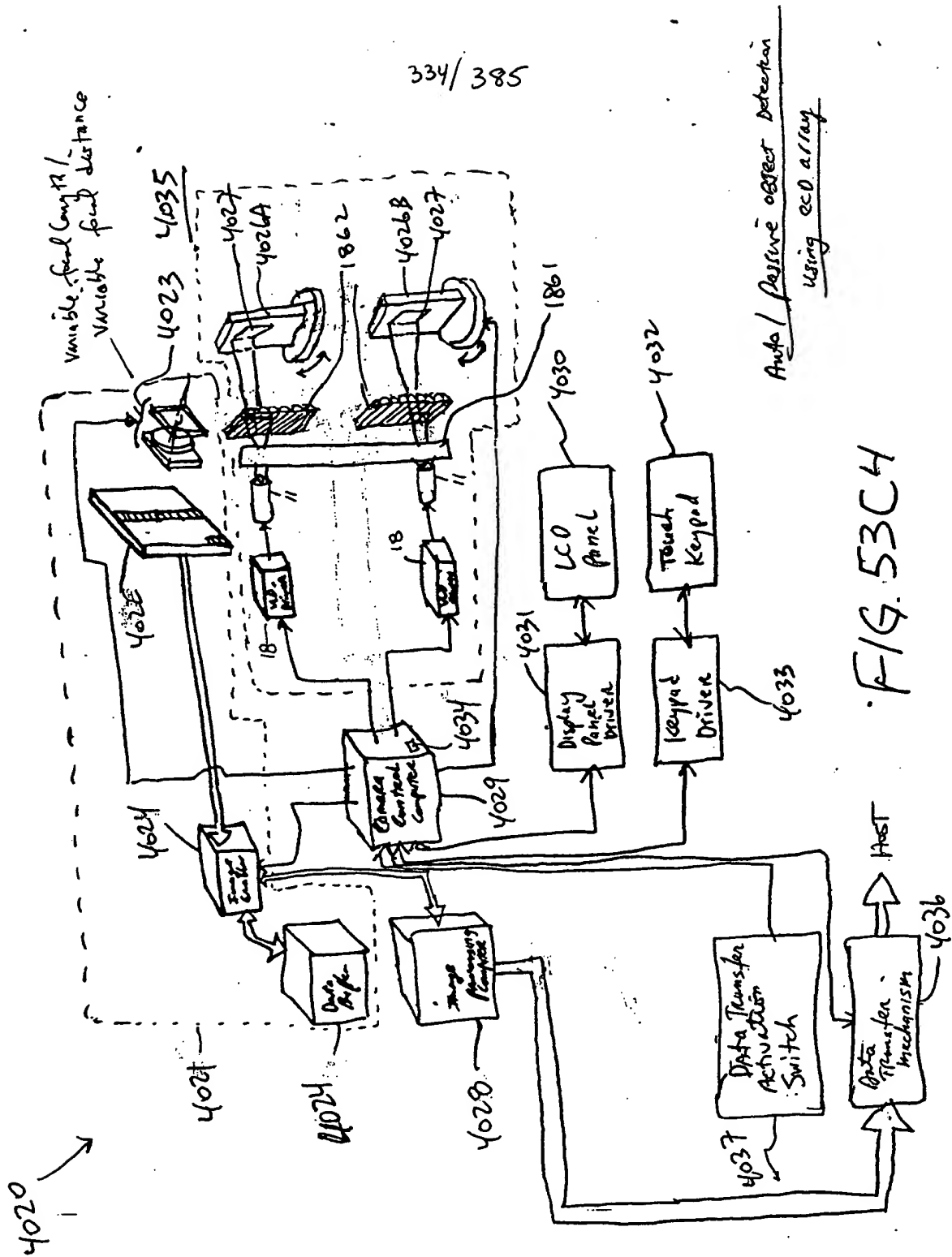


Latitude	Longitude	Time	Altitude	Distance	Direction	Remarks
10° 00' N	155° 00' W	10:00	10.0	10.0	10.0	10.0
10° 05' N	155° 05' W	10:05	10.5	10.5	10.5	10.5
10° 10' N	155° 10' W	10:10	11.0	11.0	11.0	11.0
10° 15' N	155° 15' W	10:15	11.5	11.5	11.5	11.5
10° 20' N	155° 20' W	10:20	12.0	12.0	12.0	12.0
10° 25' N	155° 25' W	10:25	12.5	12.5	12.5	12.5
10° 30' N	155° 30' W	10:30	13.0	13.0	13.0	13.0
10° 35' N	155° 35' W	10:35	13.5	13.5	13.5	13.5
10° 40' N	155° 40' W	10:40	14.0	14.0	14.0	14.0
10° 45' N	155° 45' W	10:45	14.5	14.5	14.5	14.5
10° 50' N	155° 50' W	10:50	15.0	15.0	15.0	15.0
10° 55' N	155° 55' W	10:55	15.5	15.5	15.5	15.5
11° 00' N	156° 00' W	11:00	16.0	16.0	16.0	16.0
11° 05' N	156° 05' W	11:05	16.5	16.5	16.5	16.5
11° 10' N	156° 10' W	11:10	17.0	17.0	17.0	17.0
11° 15' N	156° 15' W	11:15	17.5	17.5	17.5	17.5
11° 20' N	156° 20' W	11:20	18.0	18.0	18.0	18.0
11° 25' N	156° 25' W	11:25	18.5	18.5	18.5	18.5
11° 30' N	156° 30' W	11:30	19.0	19.0	19.0	19.0
11° 35' N	156° 35' W	11:35	19.5	19.5	19.5	19.5
11° 40' N	156° 40' W	11:40	20.0	20.0	20.0	20.0
11° 45' N	156° 45' W	11:45	20.5	20.5	20.5	20.5
11° 50' N	156° 50' W	11:50	21.0	21.0	21.0	21.0
11° 55' N	156° 55' W	11:55	21.5	21.5	21.5	21.5
12° 00' N	157° 00' W	12:00	22.0	22.0	22.0	22.0

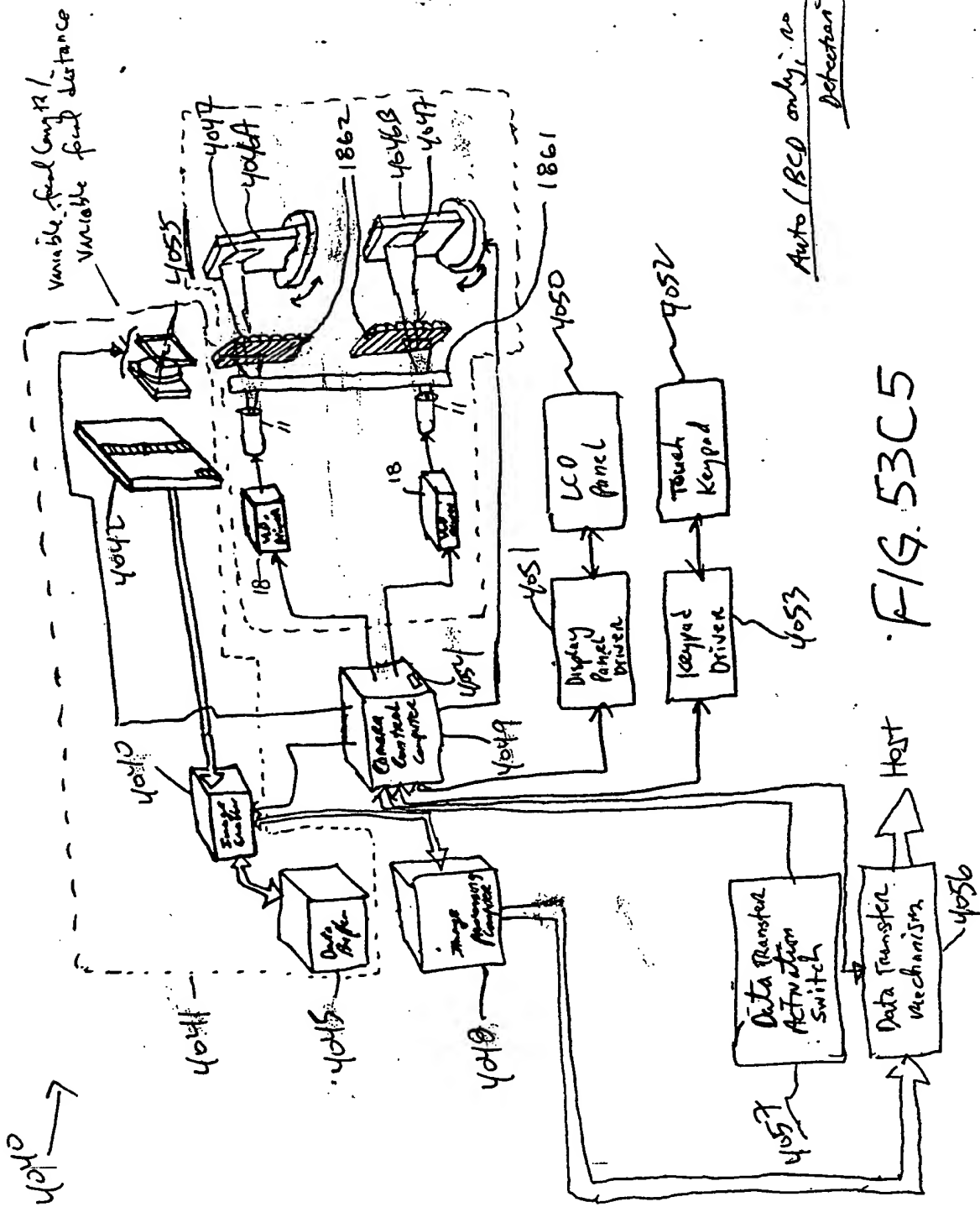
$$333 \overline{) 385}$$

Auto / User object detection





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Auto (BCD only) no object detection

FIG. 53C5

Year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100
1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	

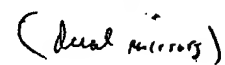


Fig. 175A-SP1

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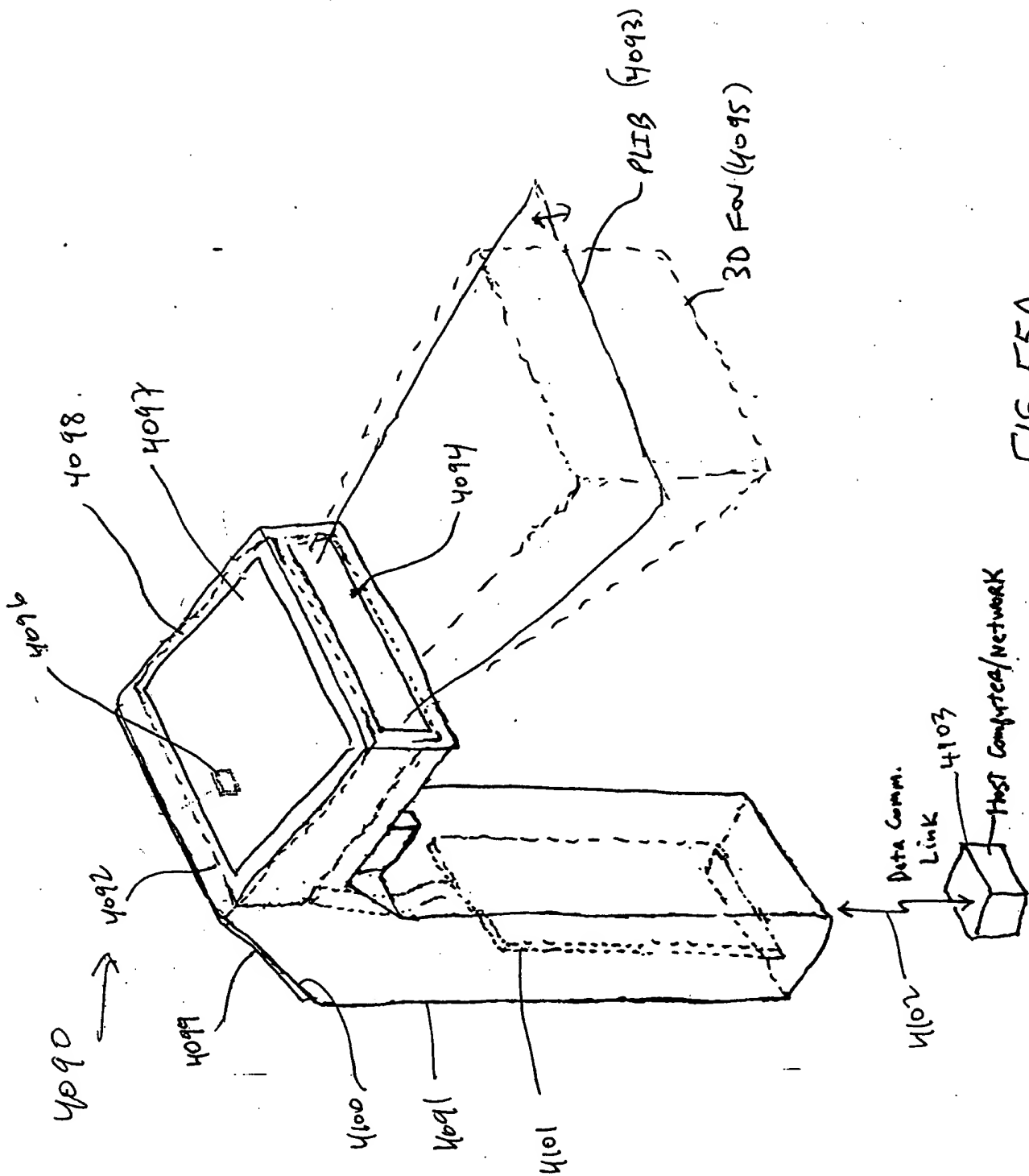


FIG. 55A

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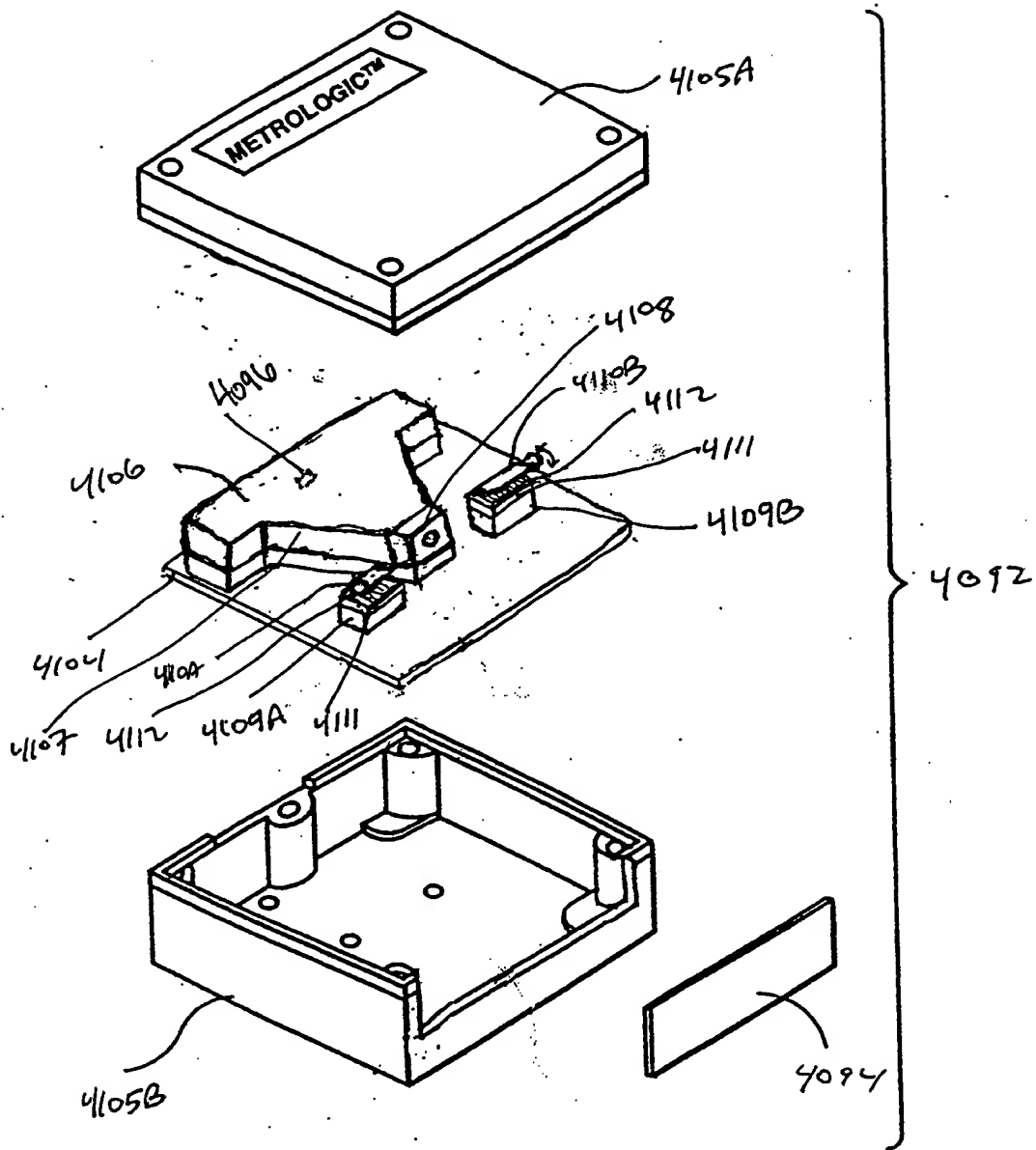


FIG. 55B

Broggs cell
Fig. 1A-6B

FIG. 55B

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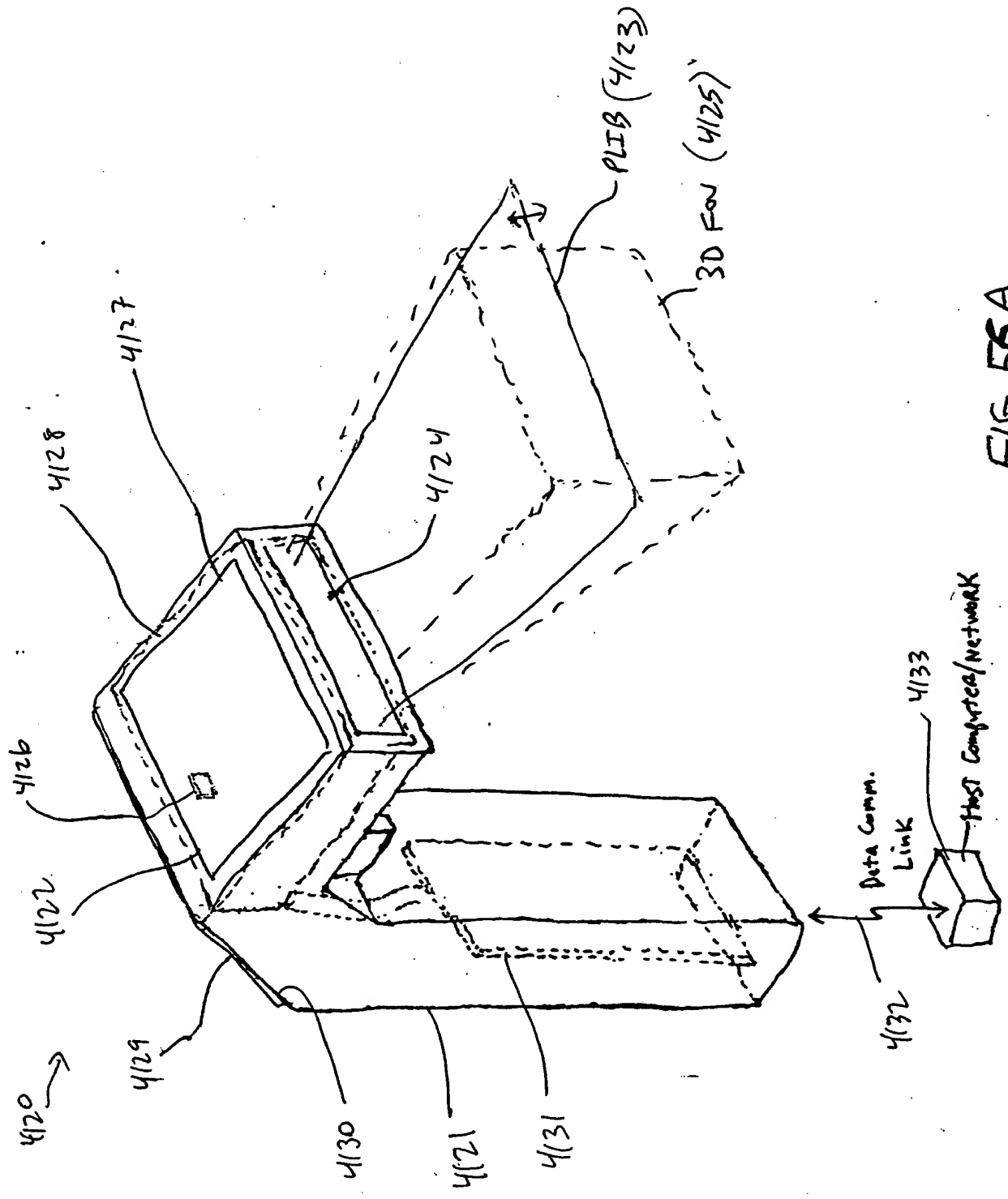


FIG. 56A

00990585-412101
TOTAL 5850660

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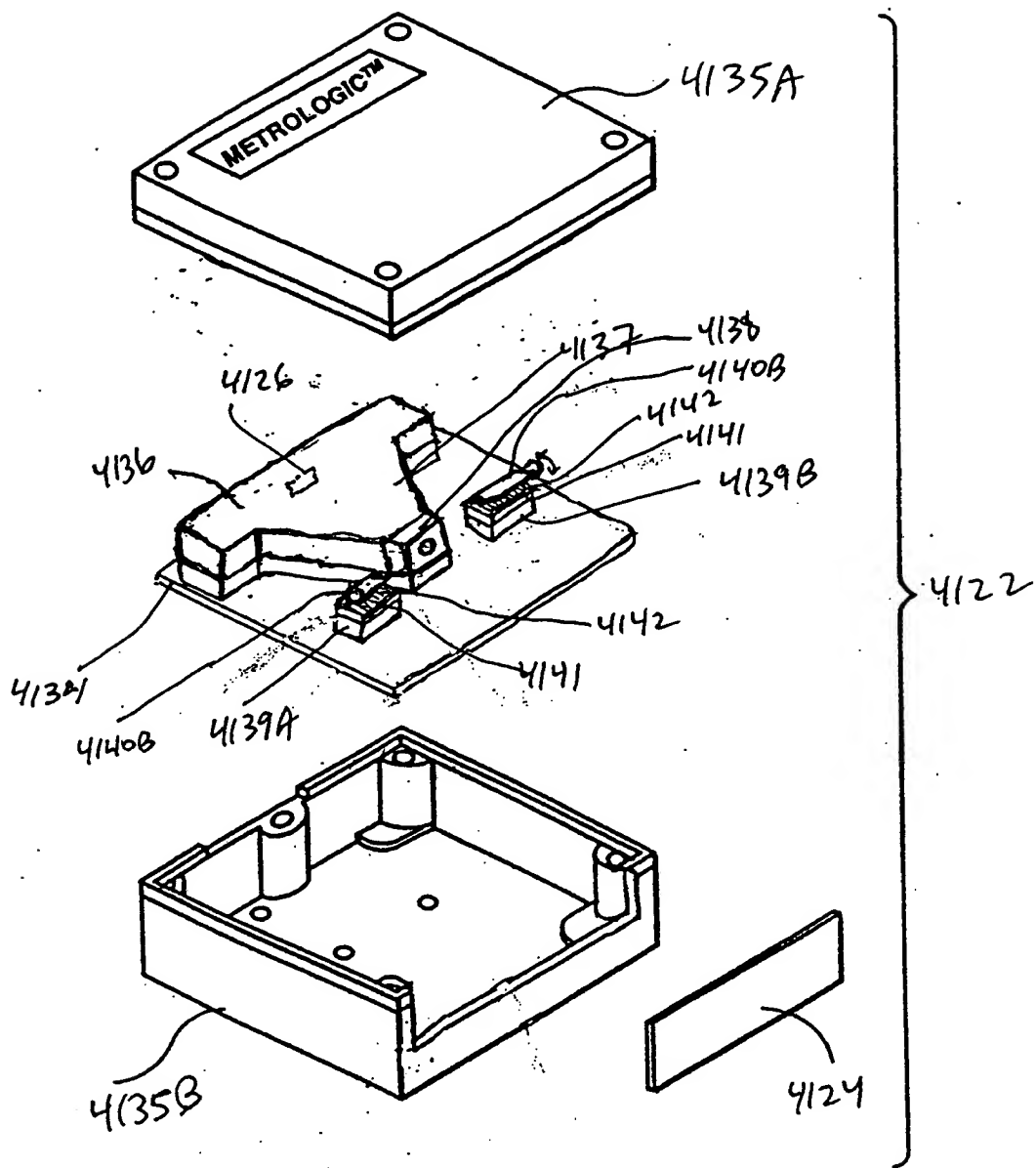


FIG. 56B

DM

Fig. 1E 7A-7C

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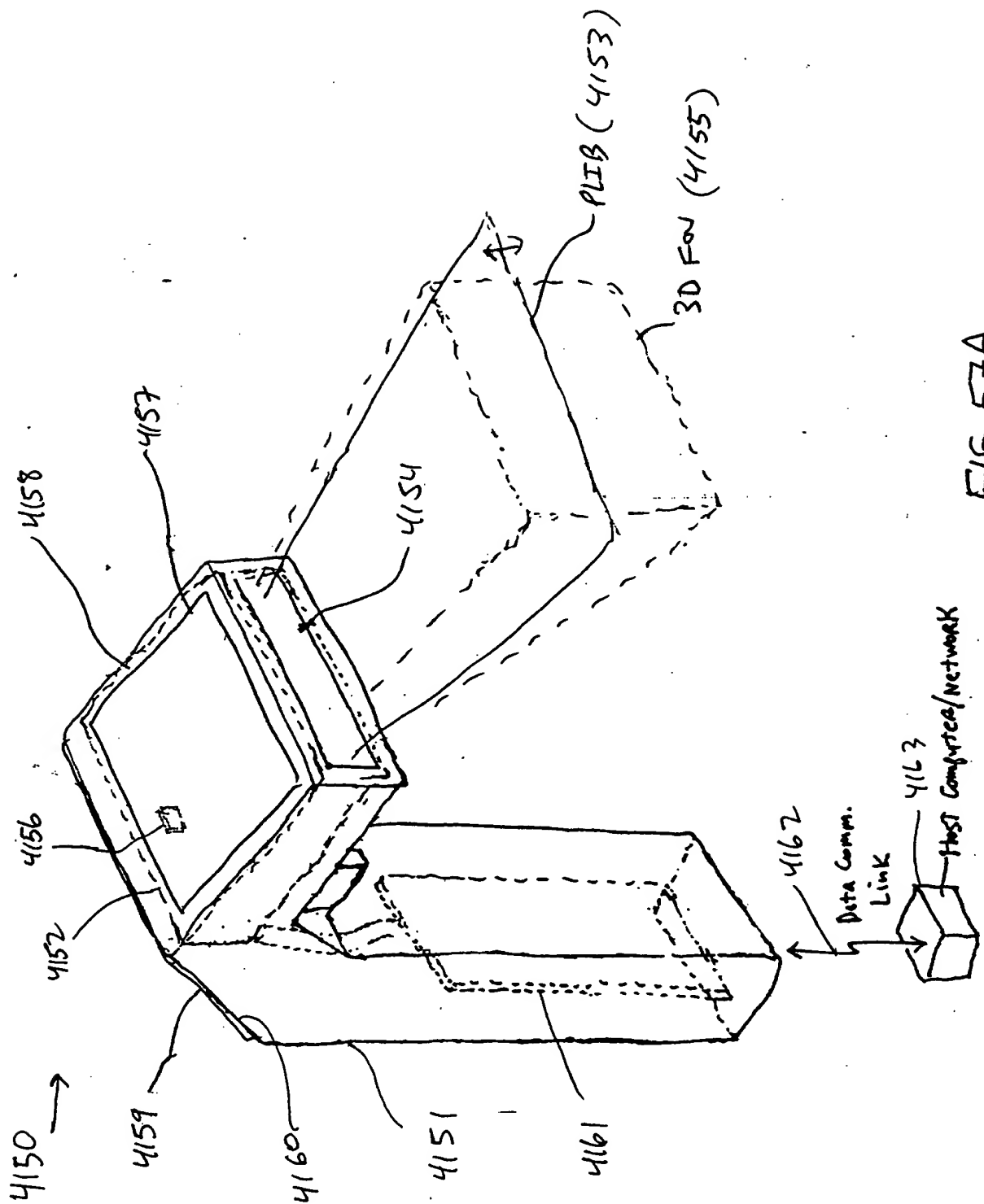


FIG. 57A

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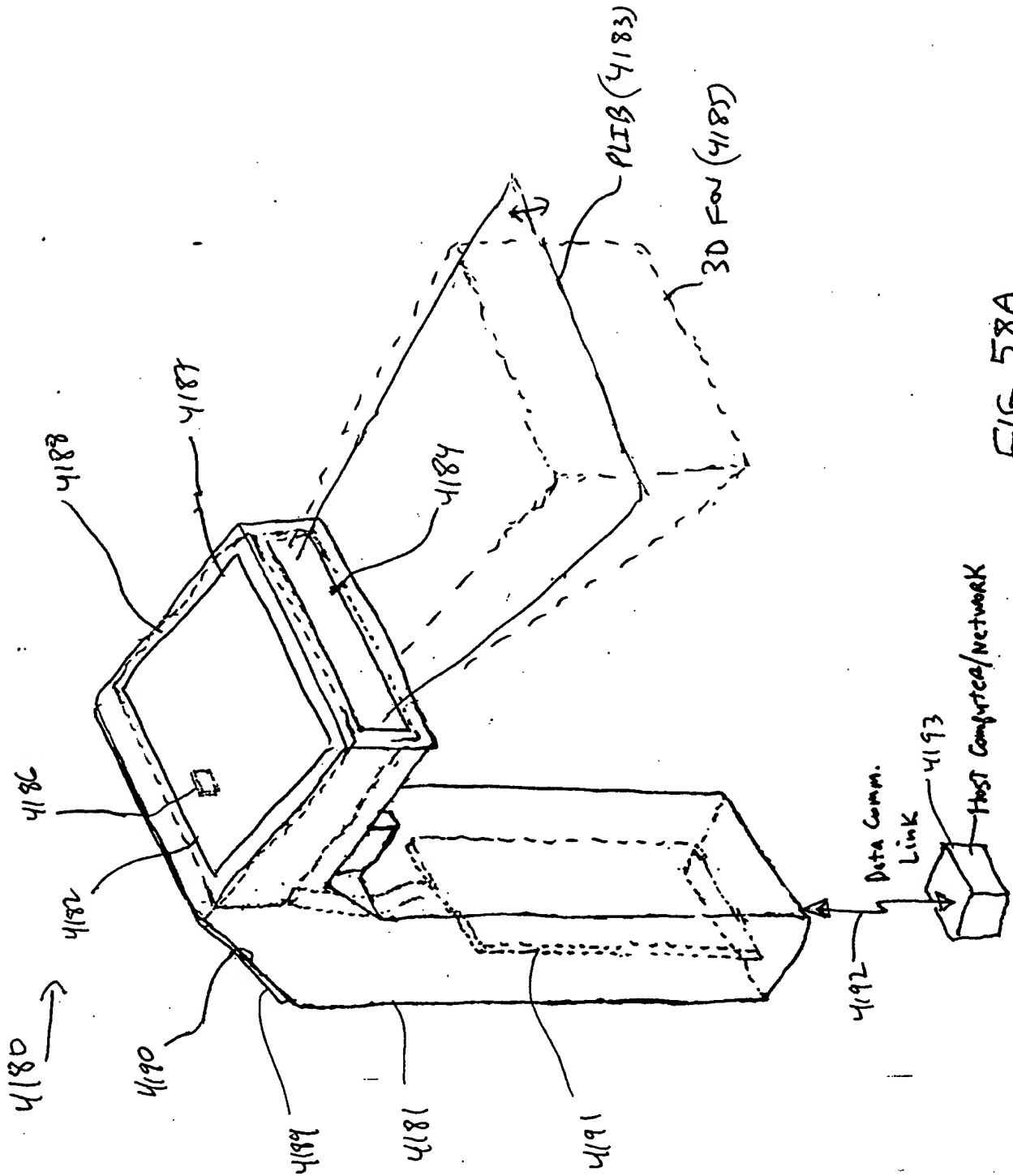


FIG. 58A

TOTAL 58505560

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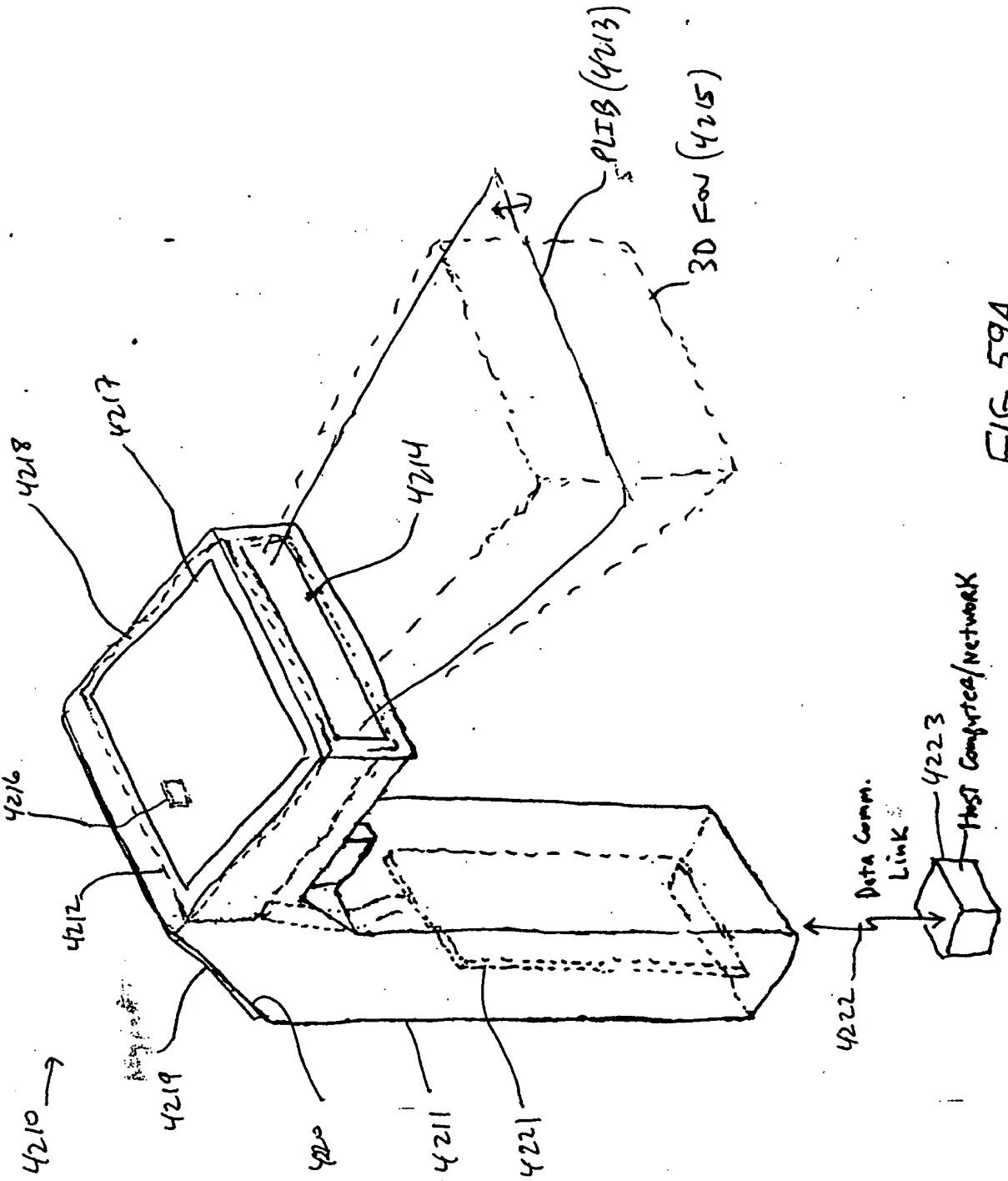


FIG. 59A

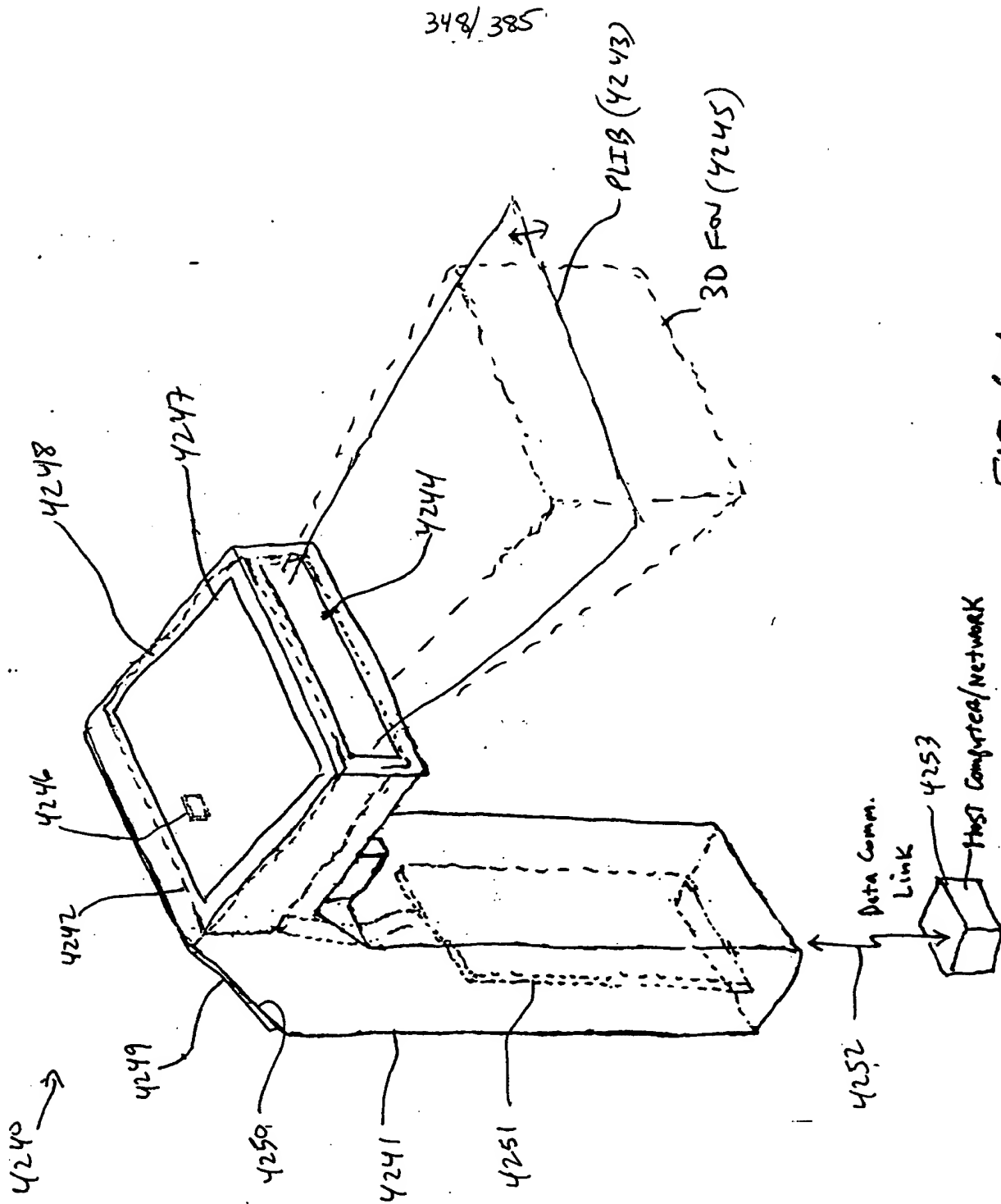


FIG. 60A

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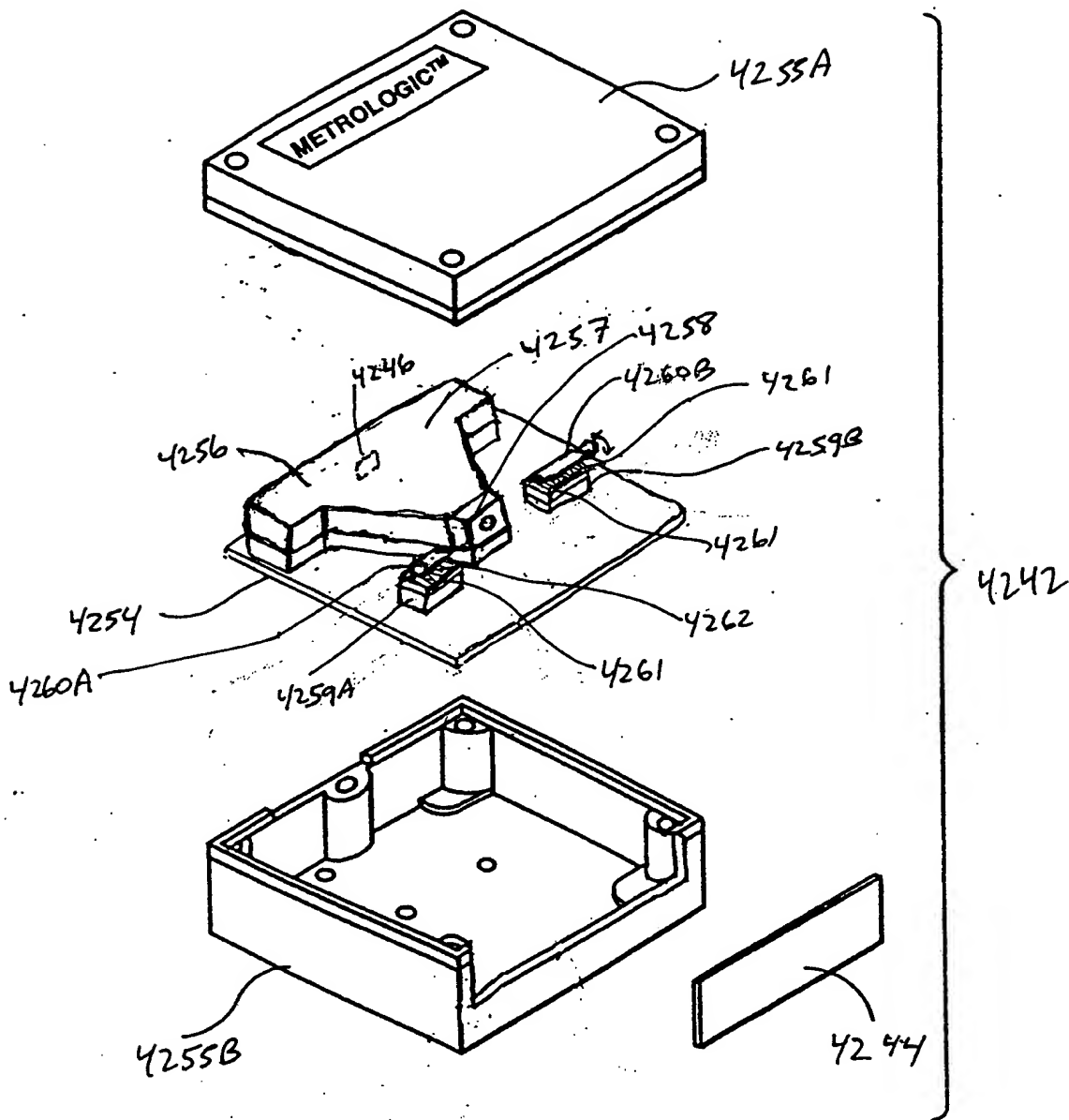


FIG. 60B

Bthalon (Tang. phase mod.)
Fig. 1 I 17A-17B

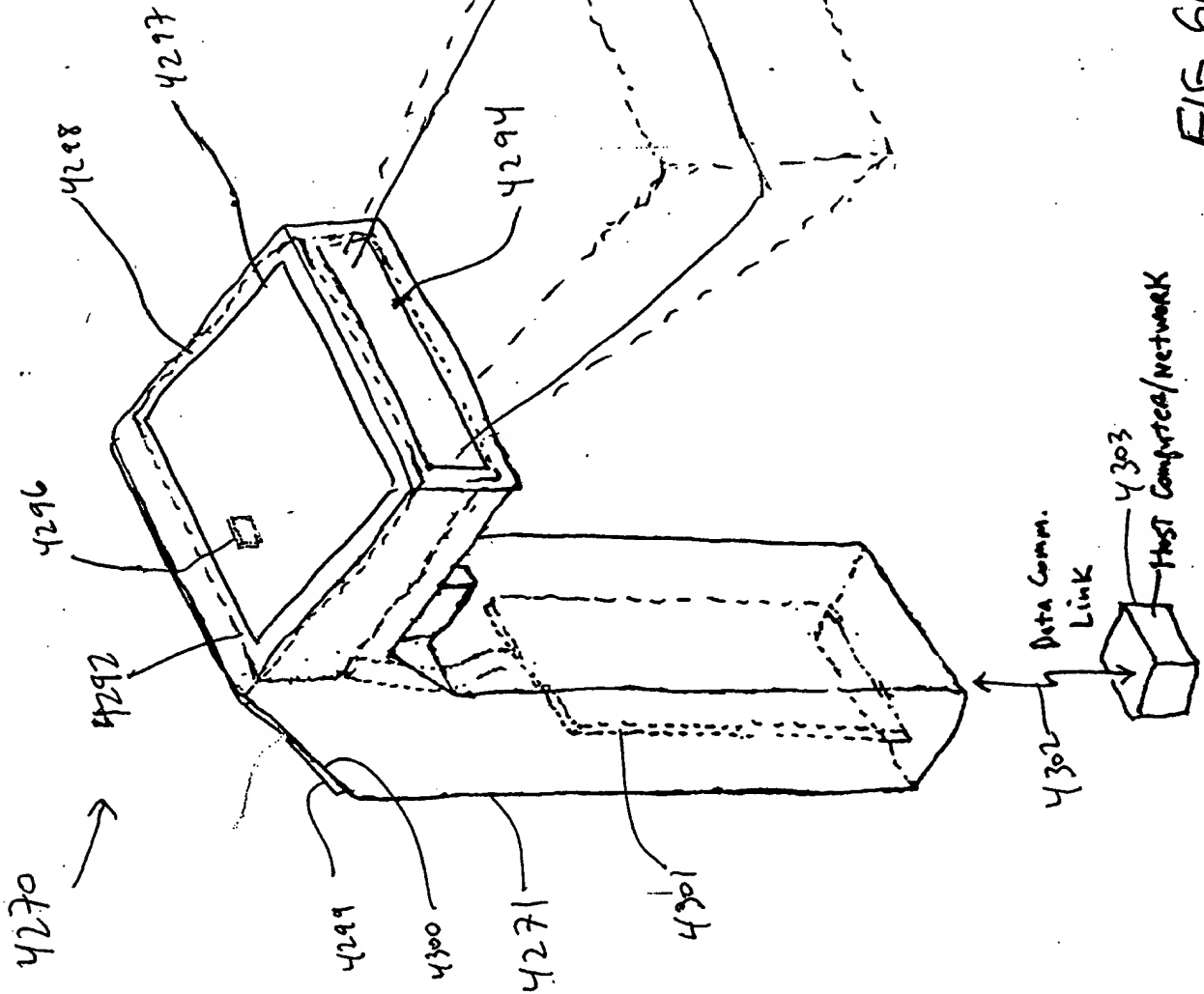
00900555-112101

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PLIB (4293)

3D Fox (4295)

FIG. 61A



00000585-112101

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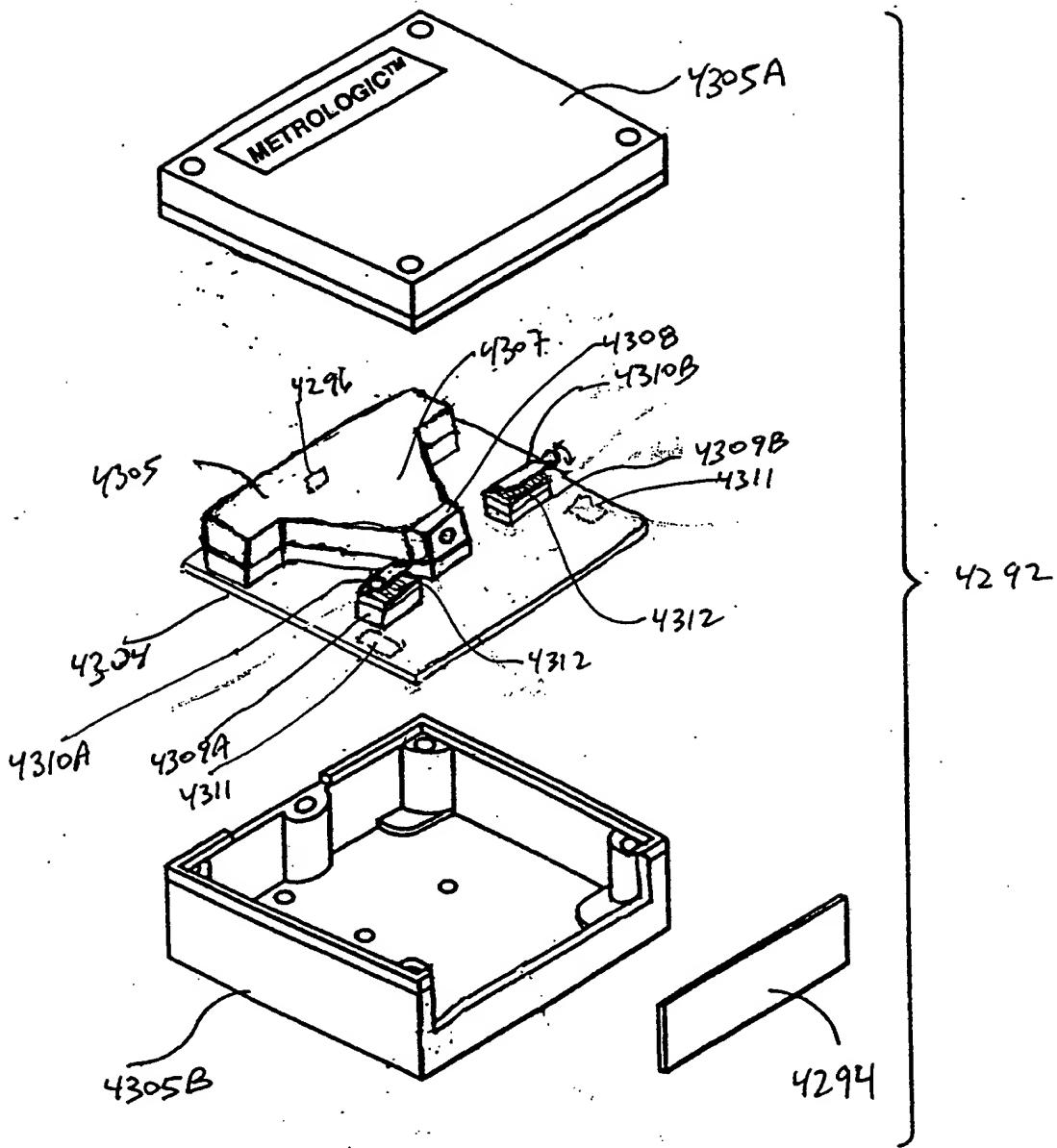


FIG. 61B

Mod. hugging

Fig. 1A-19B

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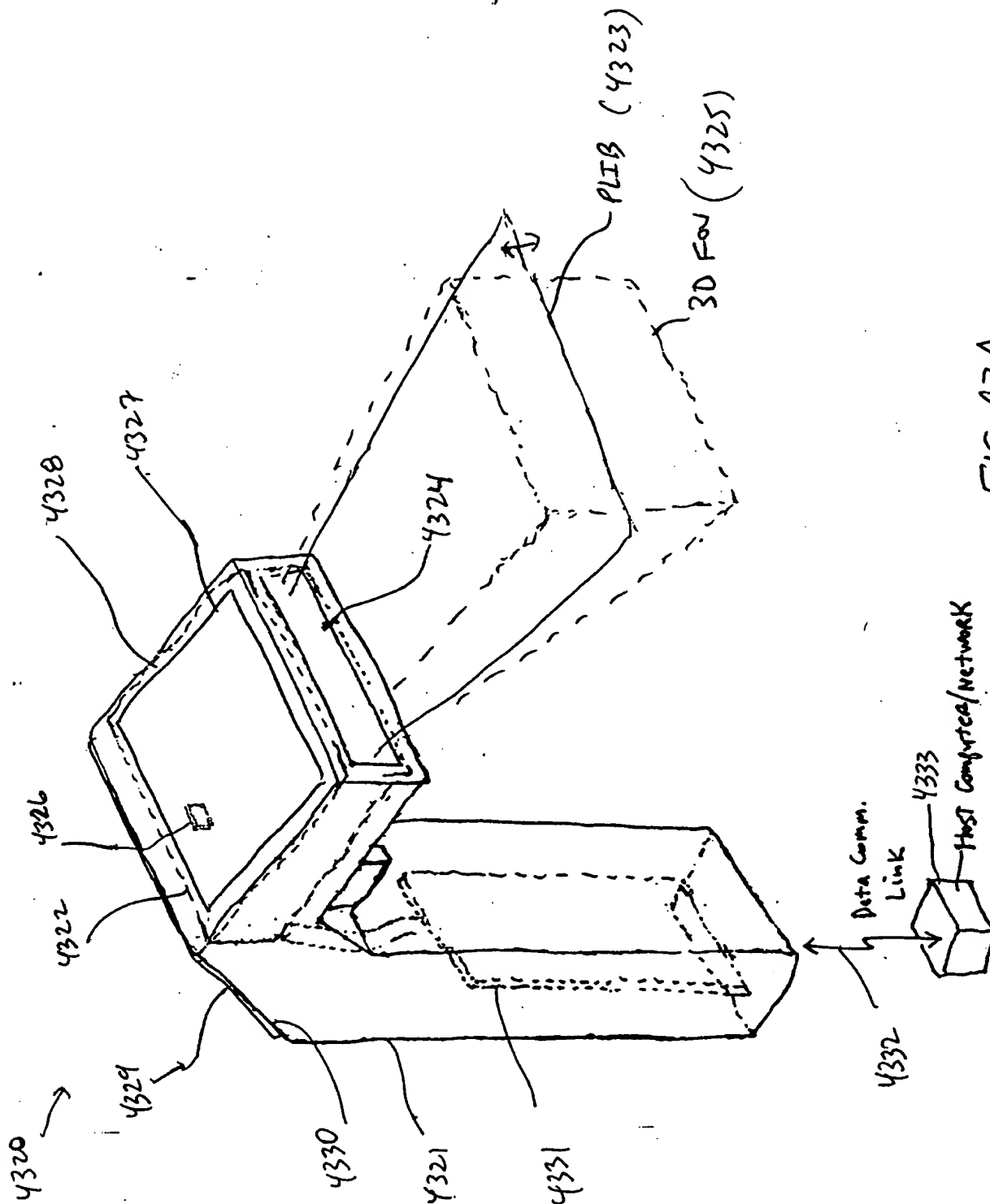


FIG. 62A

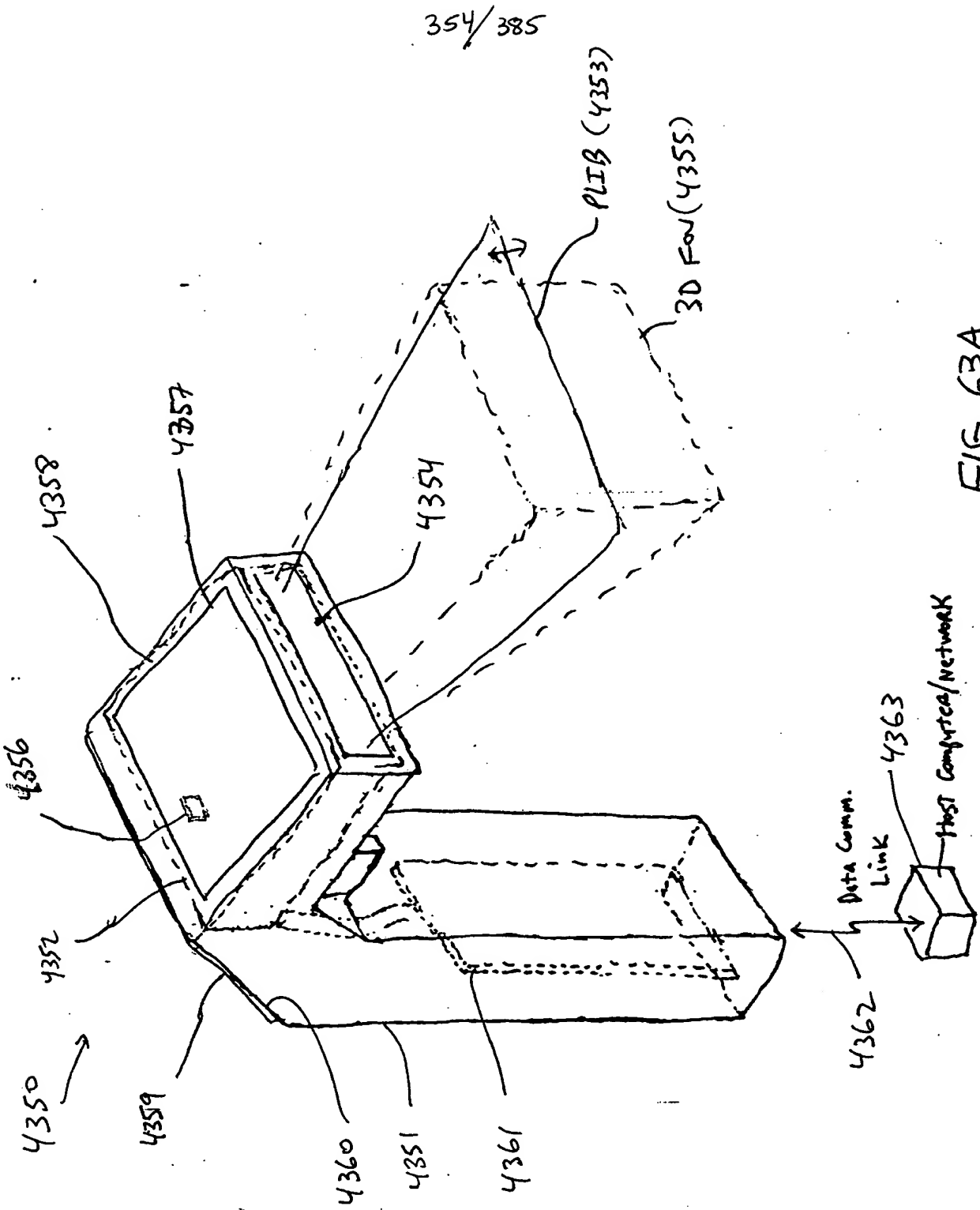


FIG. 63A

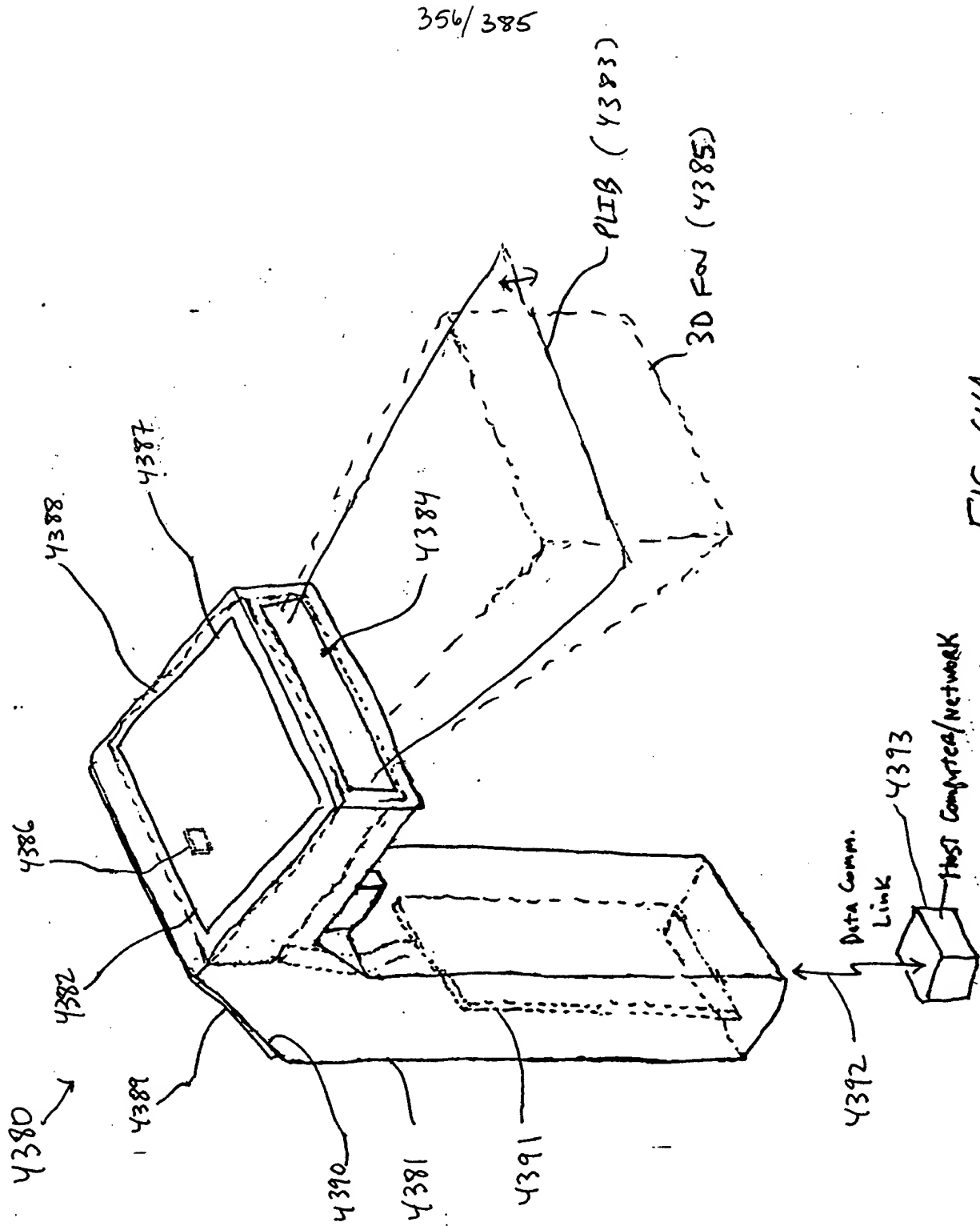


FIG. 64A

00990828-12101

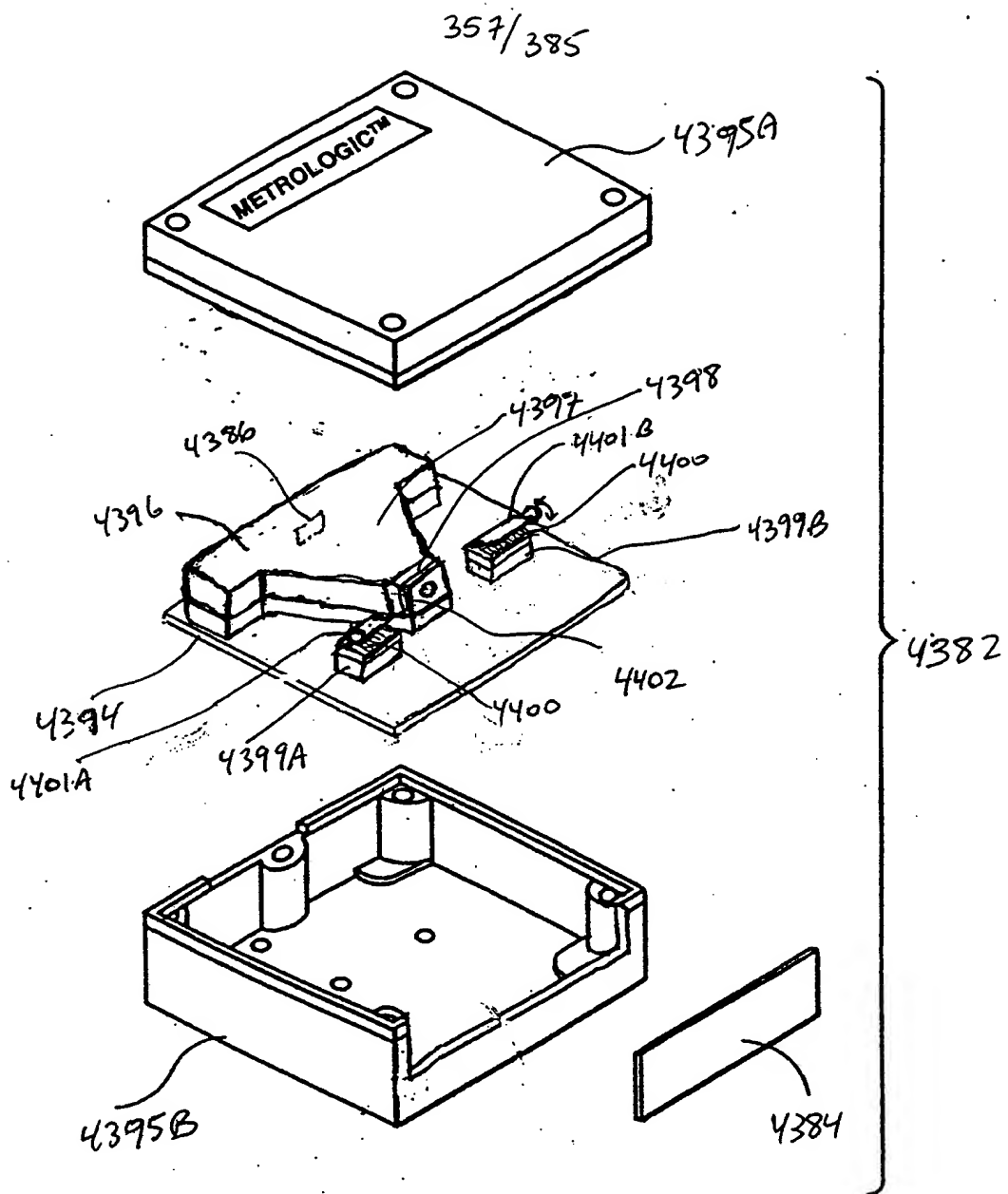


FIG. 64B

* E-optical
Shutter Before
IP Lens
Cg-124A

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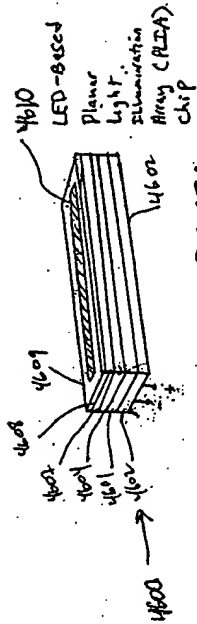


FIG. 67A

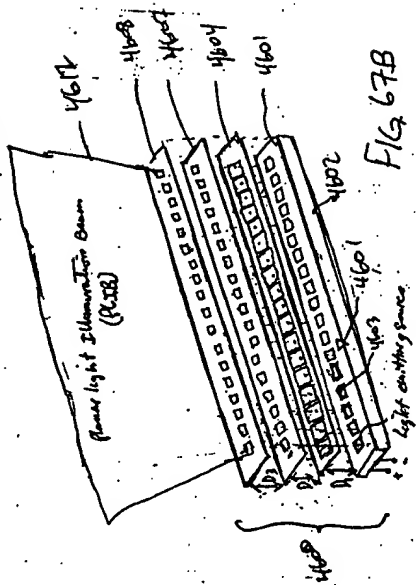


FIG. 67B

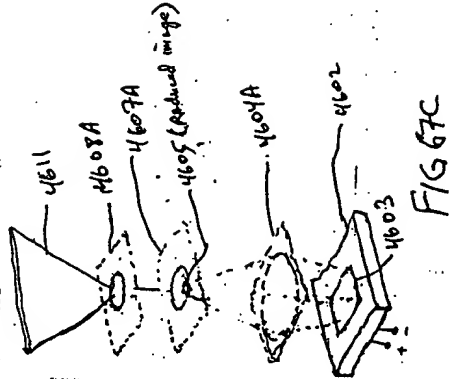


FIG. 67C

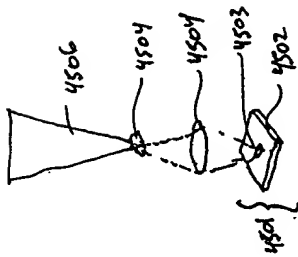


FIG. 65B

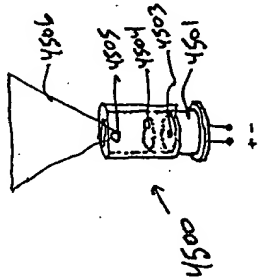


FIG. 65A

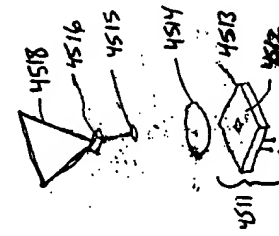


FIG. 66B

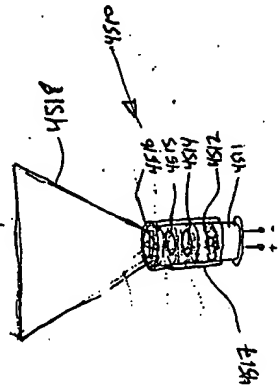
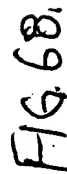


FIG. 66A



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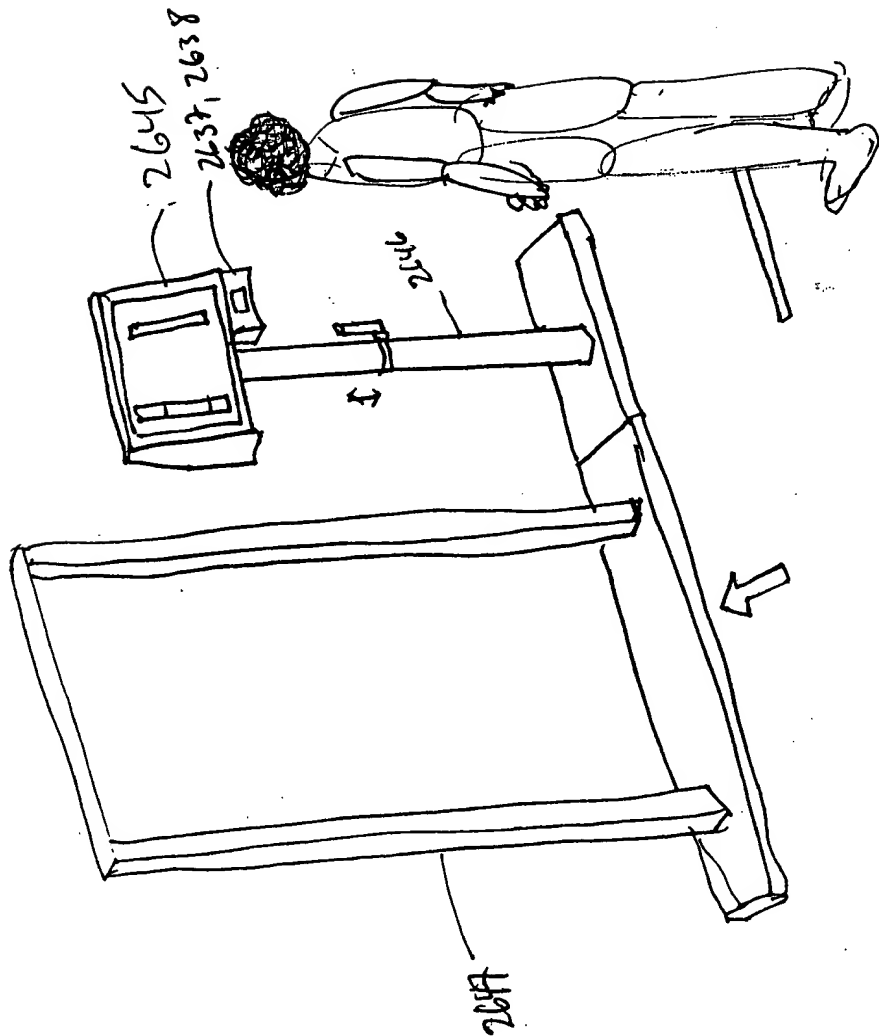


FIG. 68A

104211 53506660

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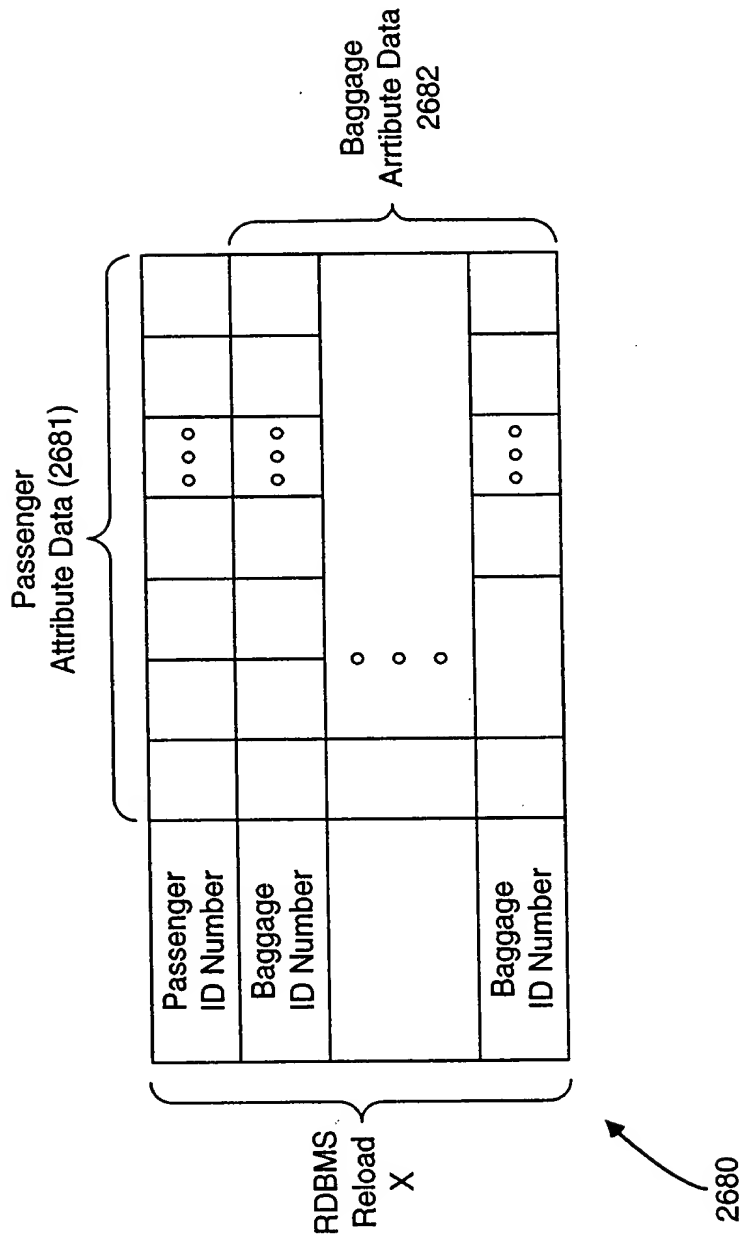


FIG. 68B

FIG. 68C1

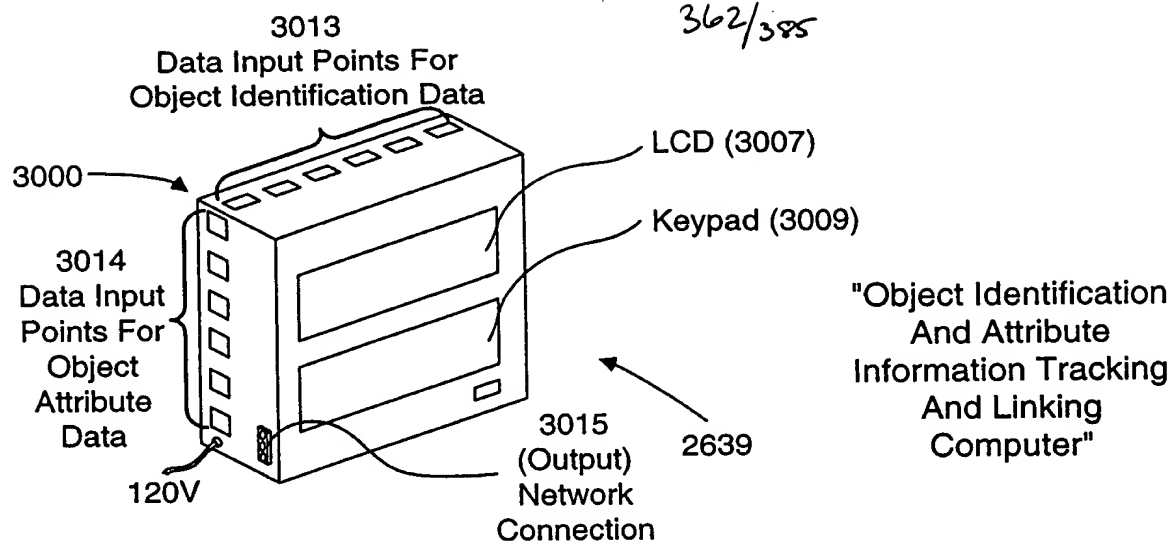


FIG. 68C1

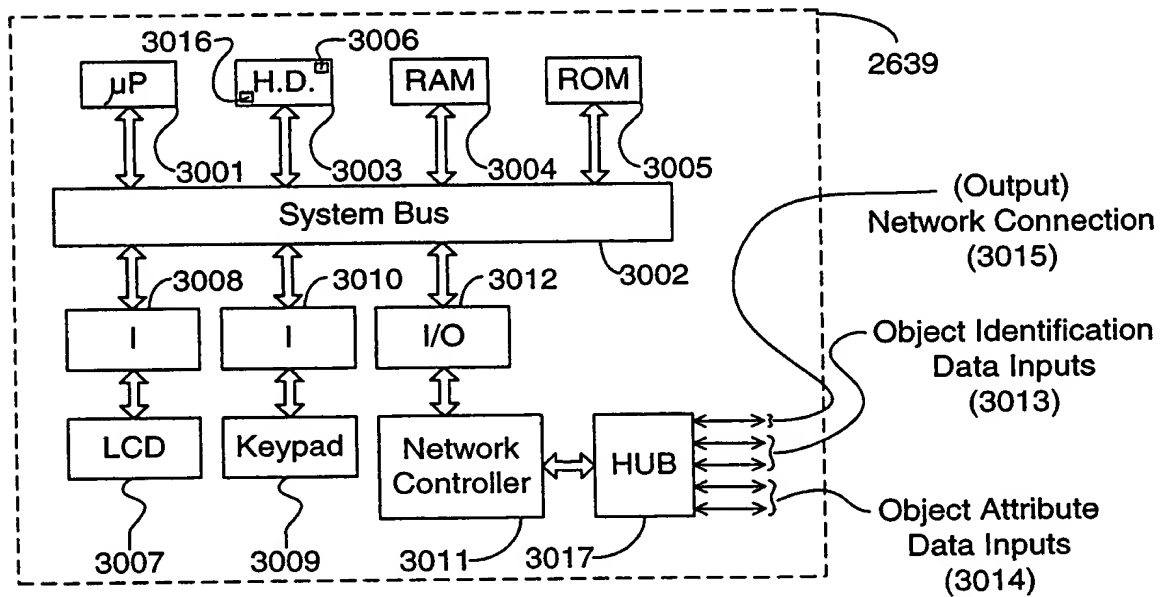


FIG. 68C2

Object Identification And Attribute Information Tracking And Linking Computer System.

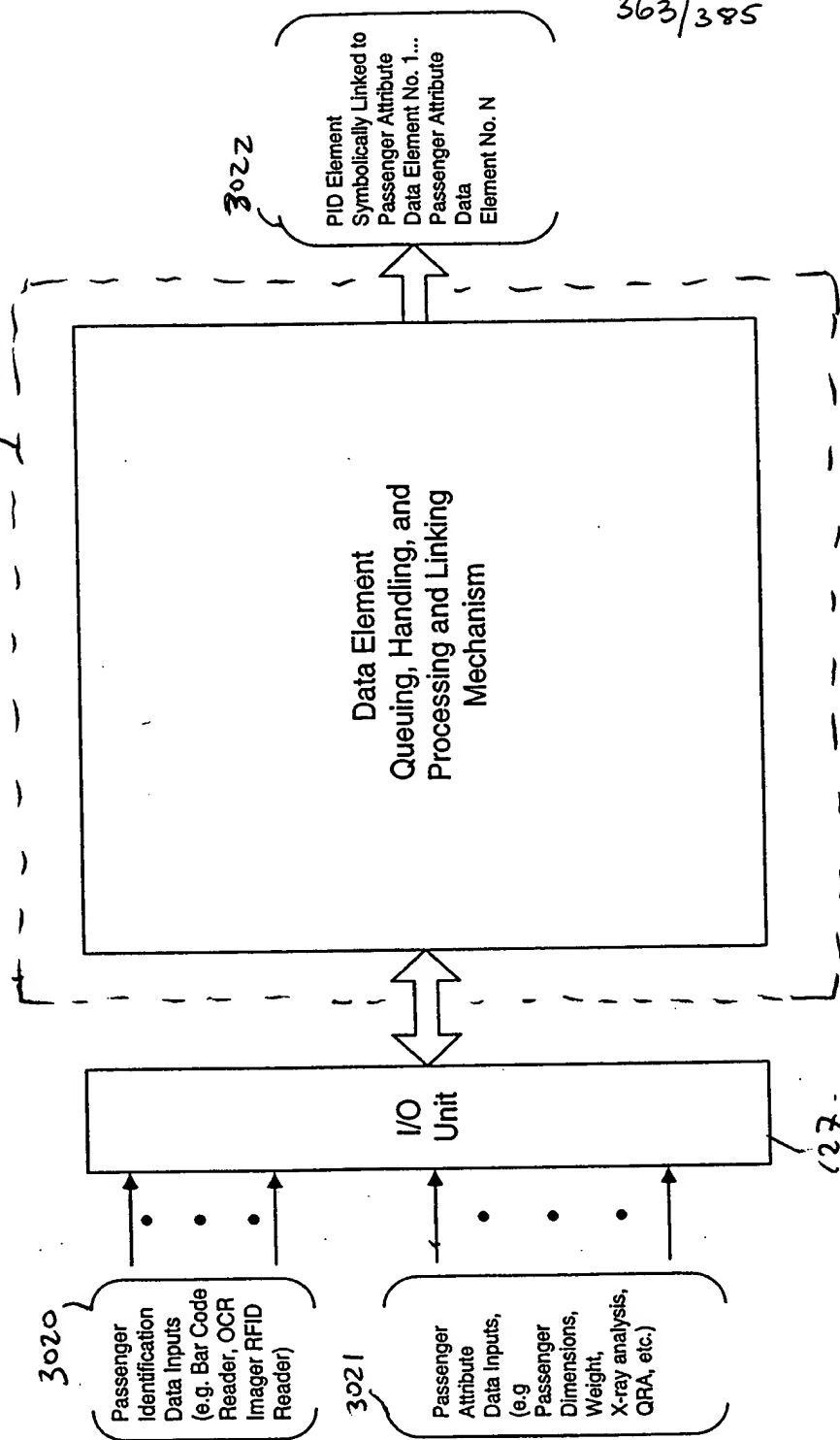


FIG. 68C3

Data Element Queuing, Handling, and Processing Subsystem Employed In The Object Identification And Attribute Acquisition System Of The Present Invention. (131)

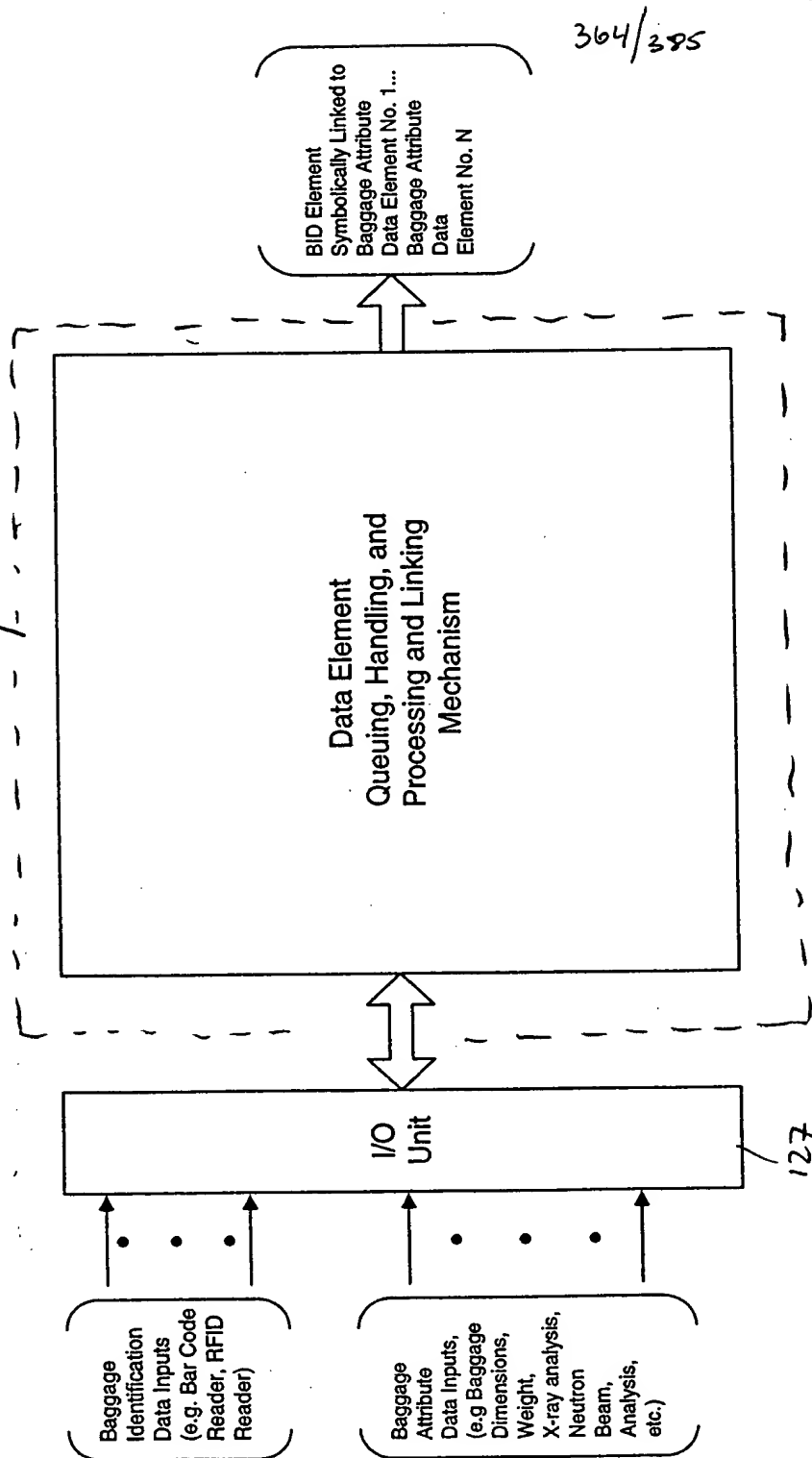


FIG. 68C4

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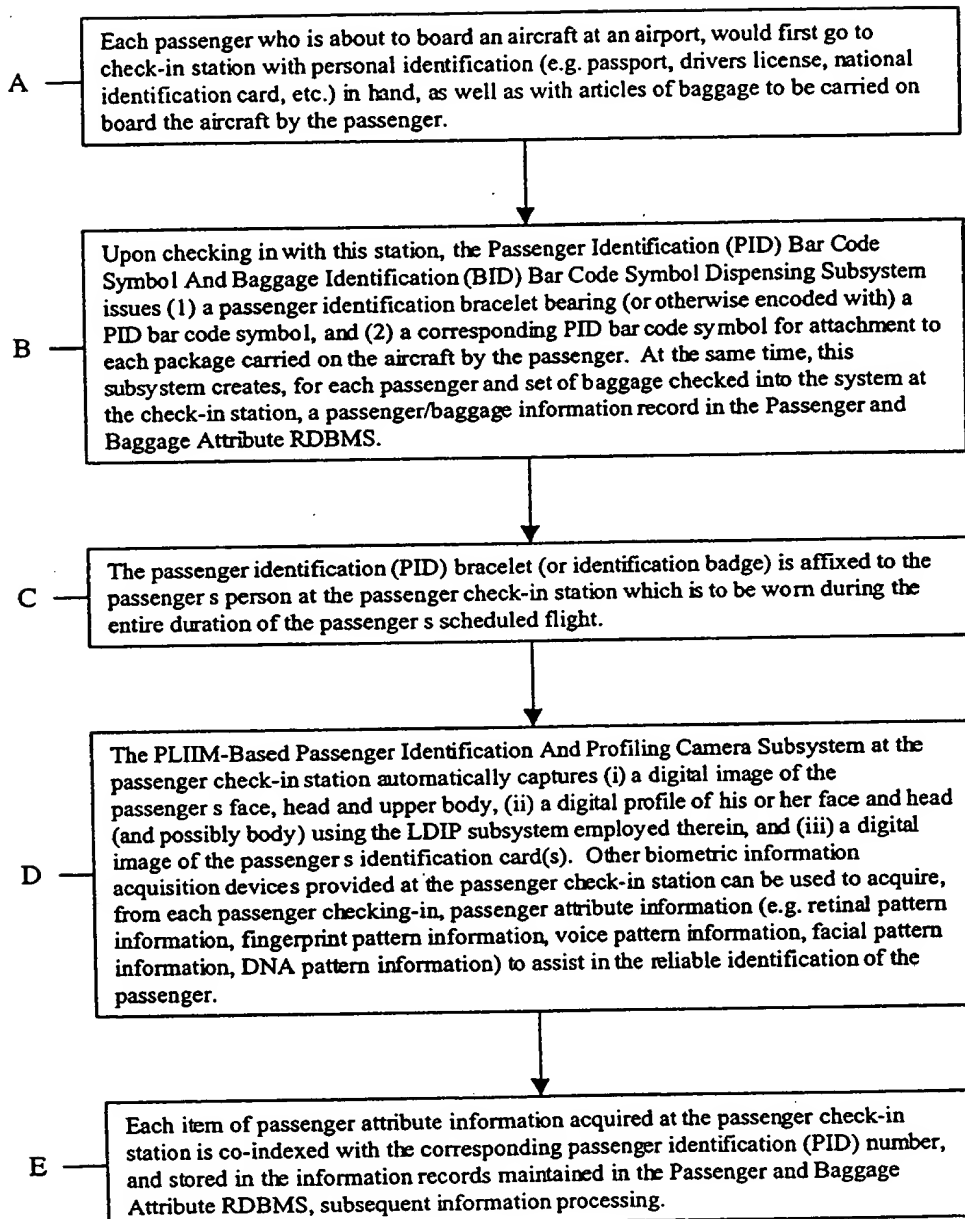


FIG. 68D1

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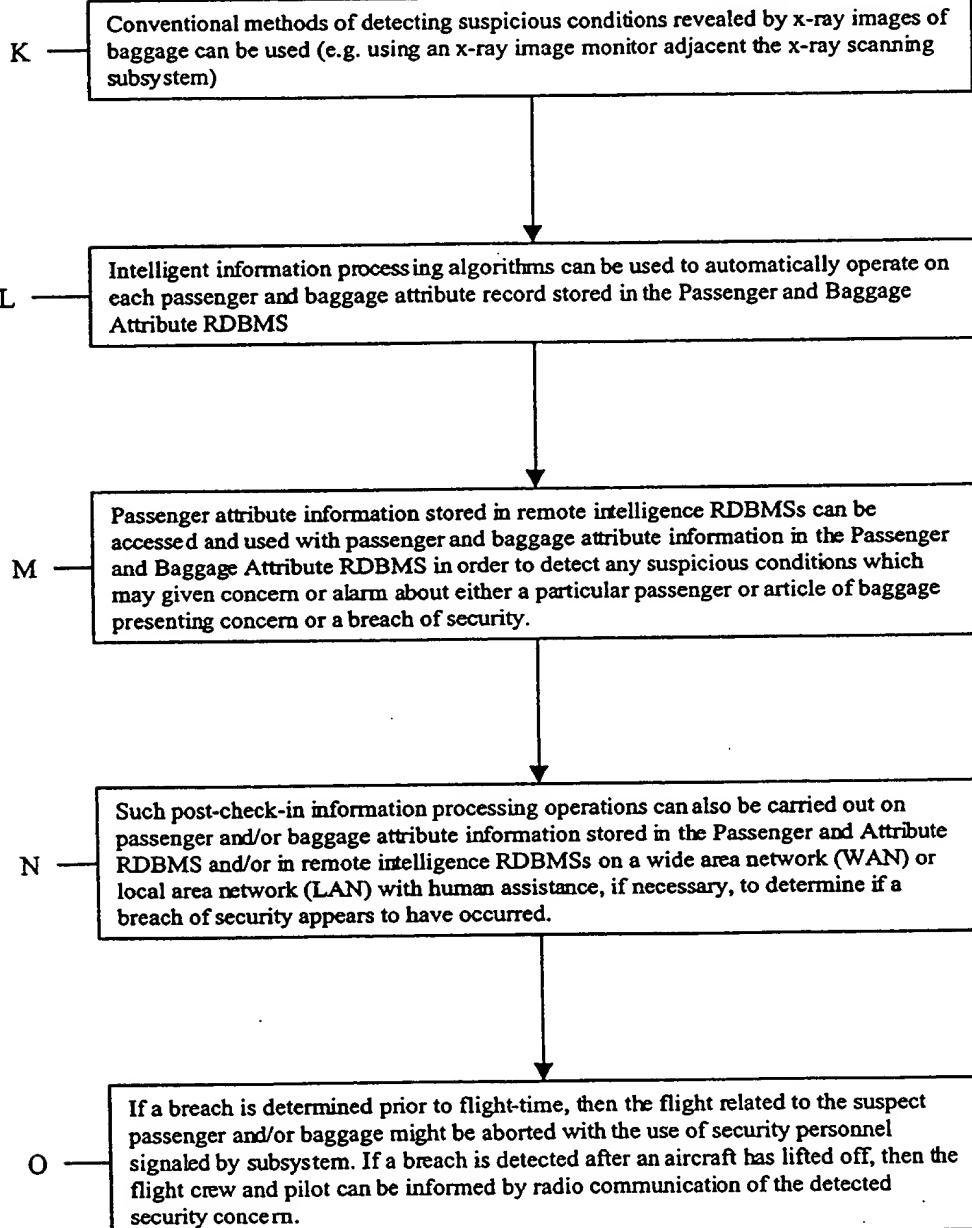


FIG. 68D3

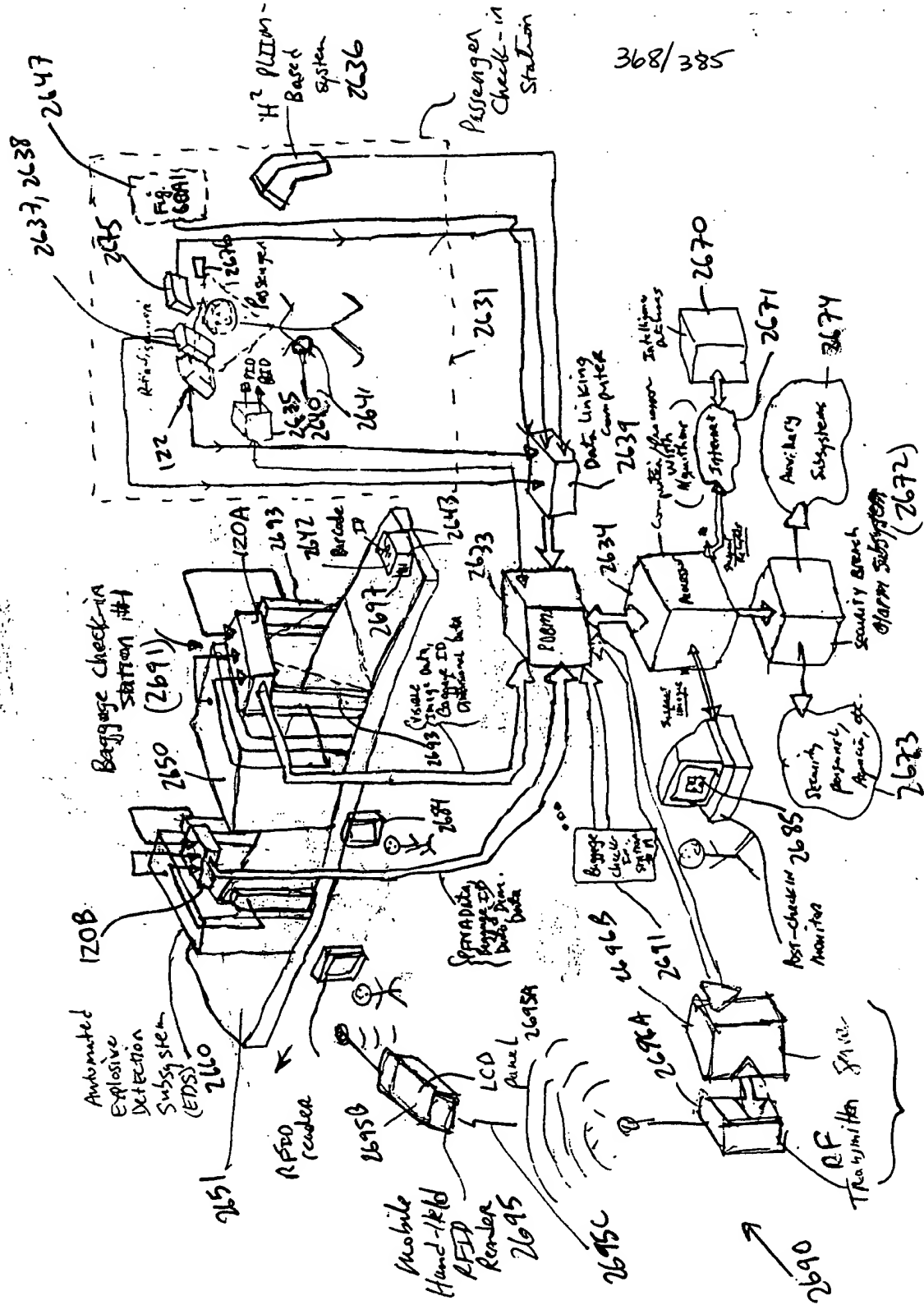


FIG. 69A

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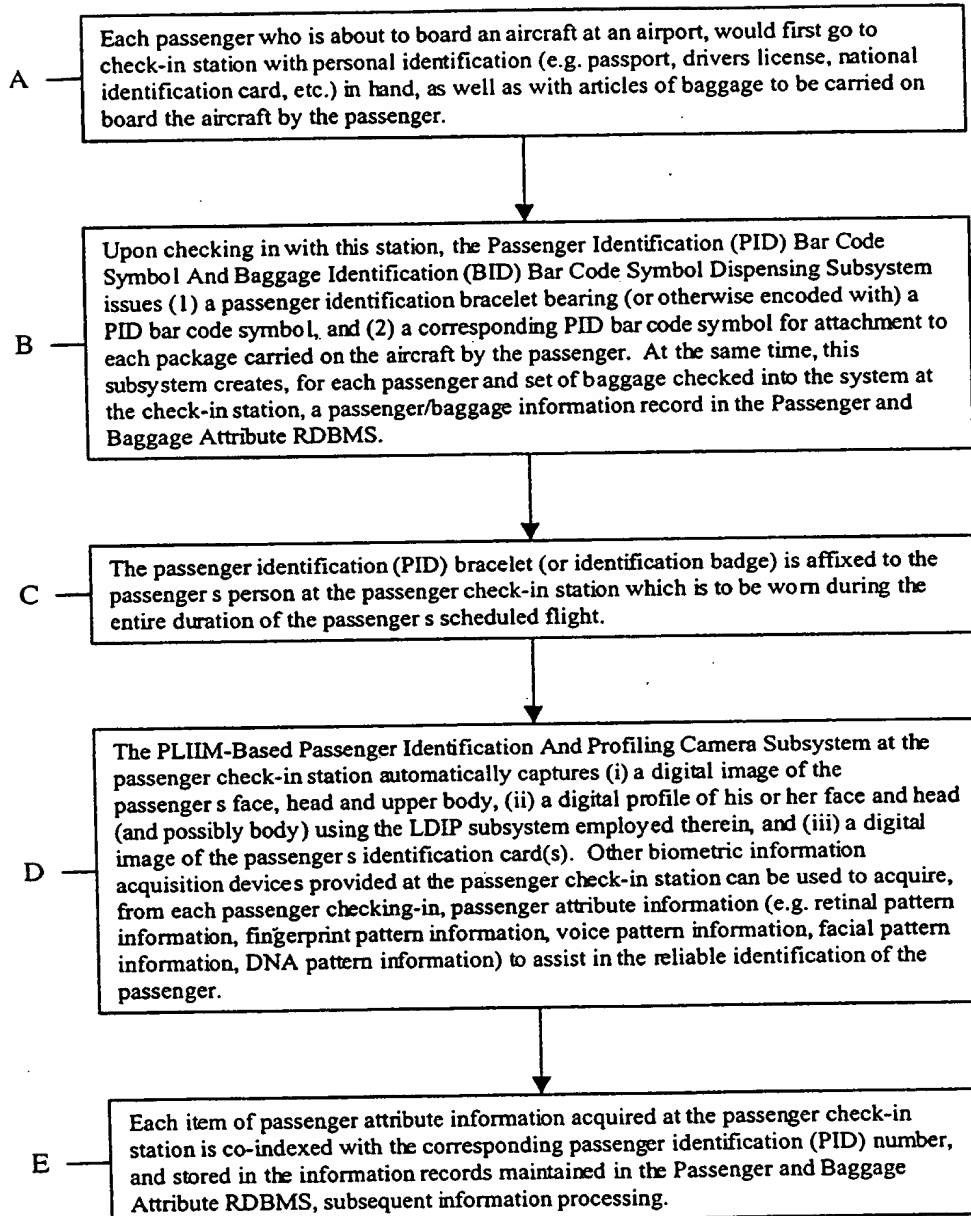


FIG. 69B1

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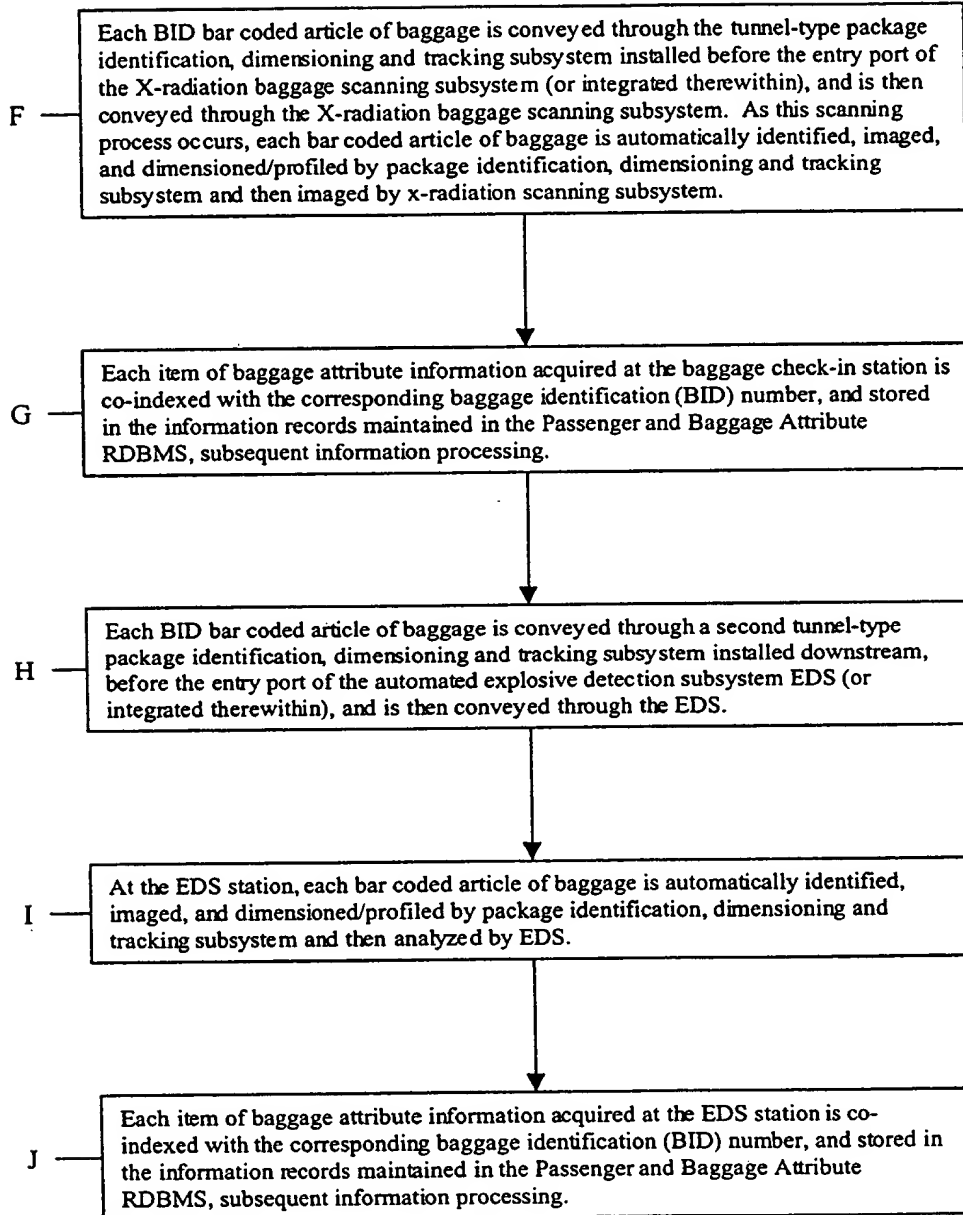


FIG. 69B2

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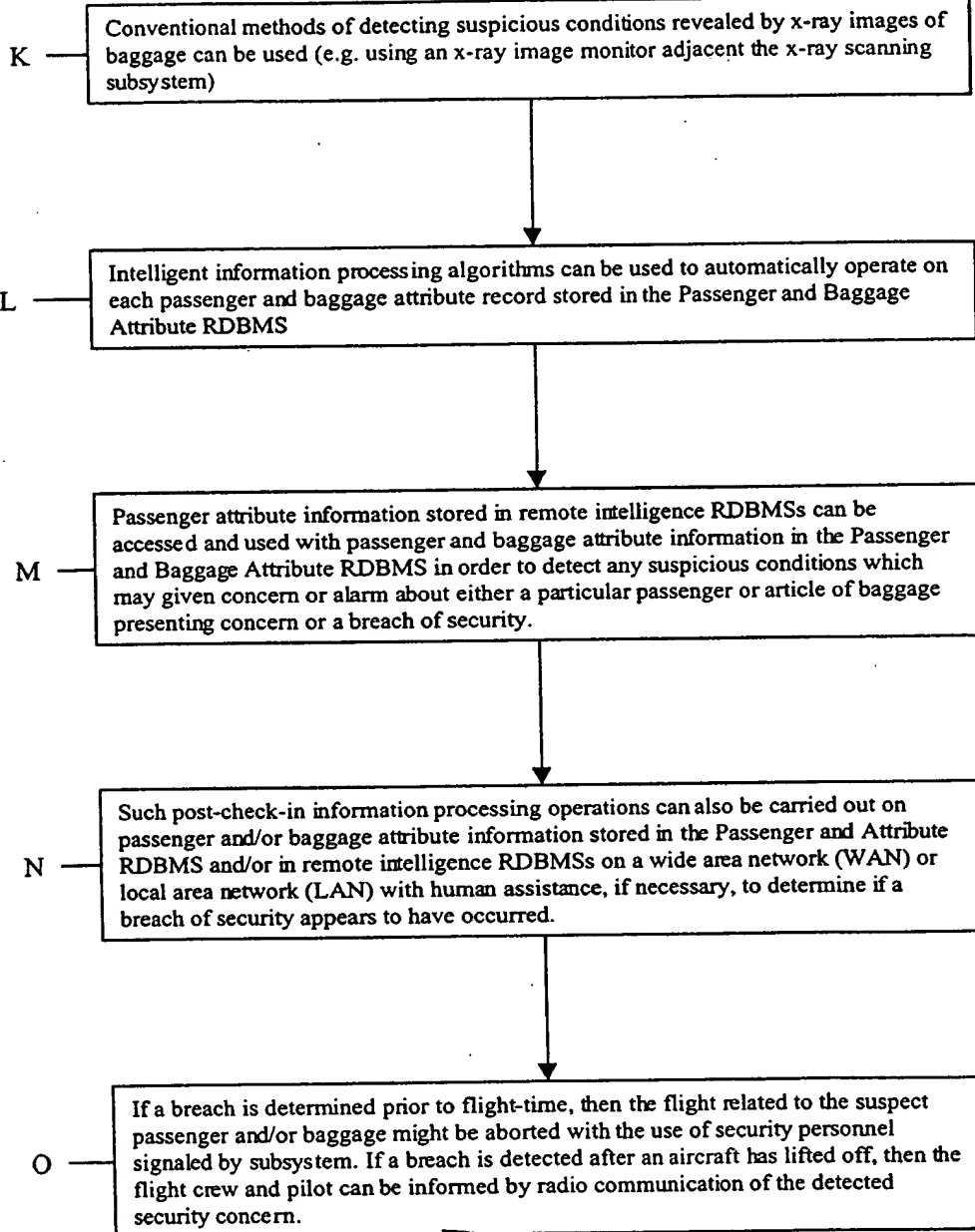
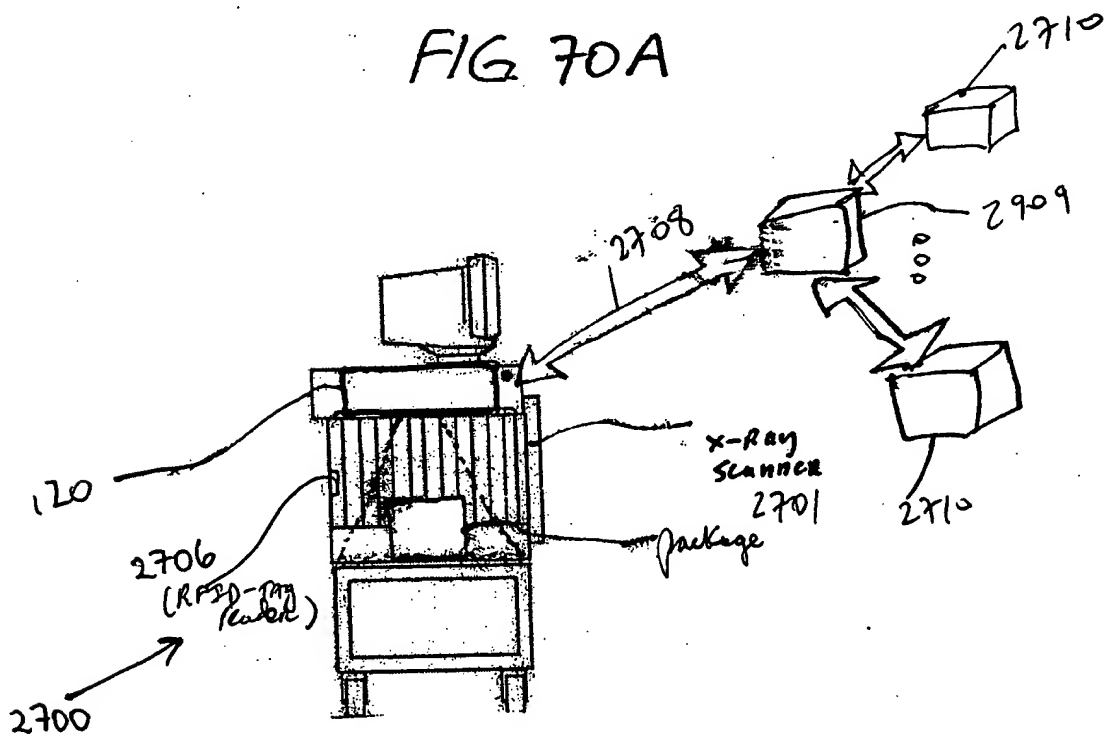
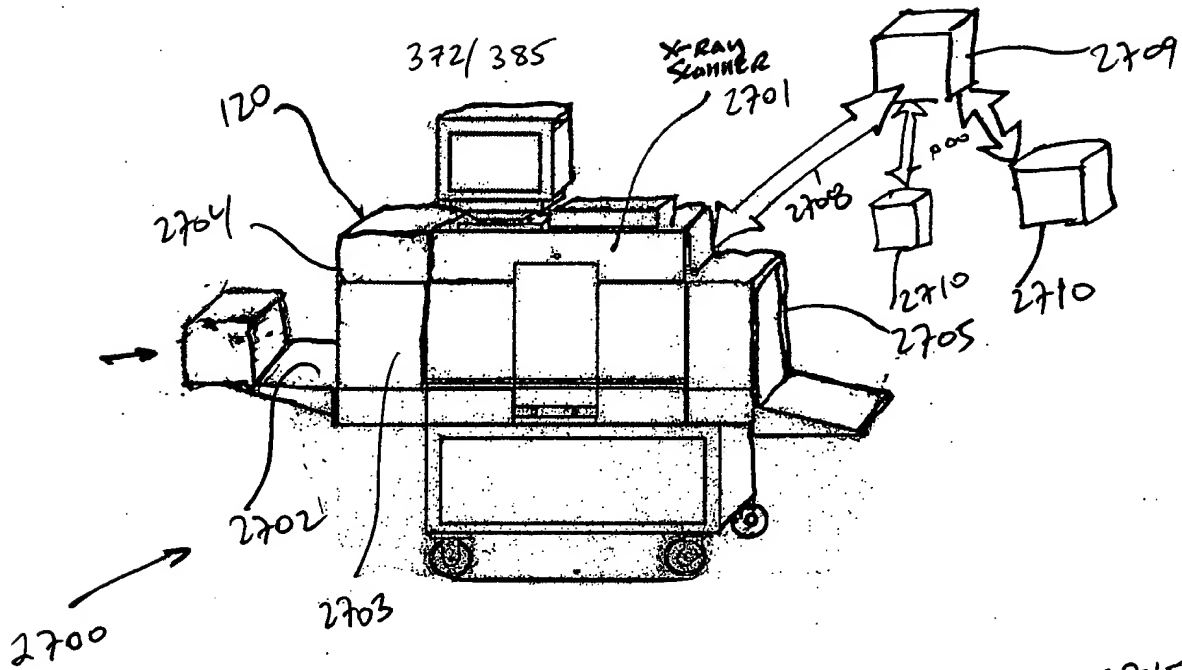


FIG. 69B3

09900585 112101
10211 58505660



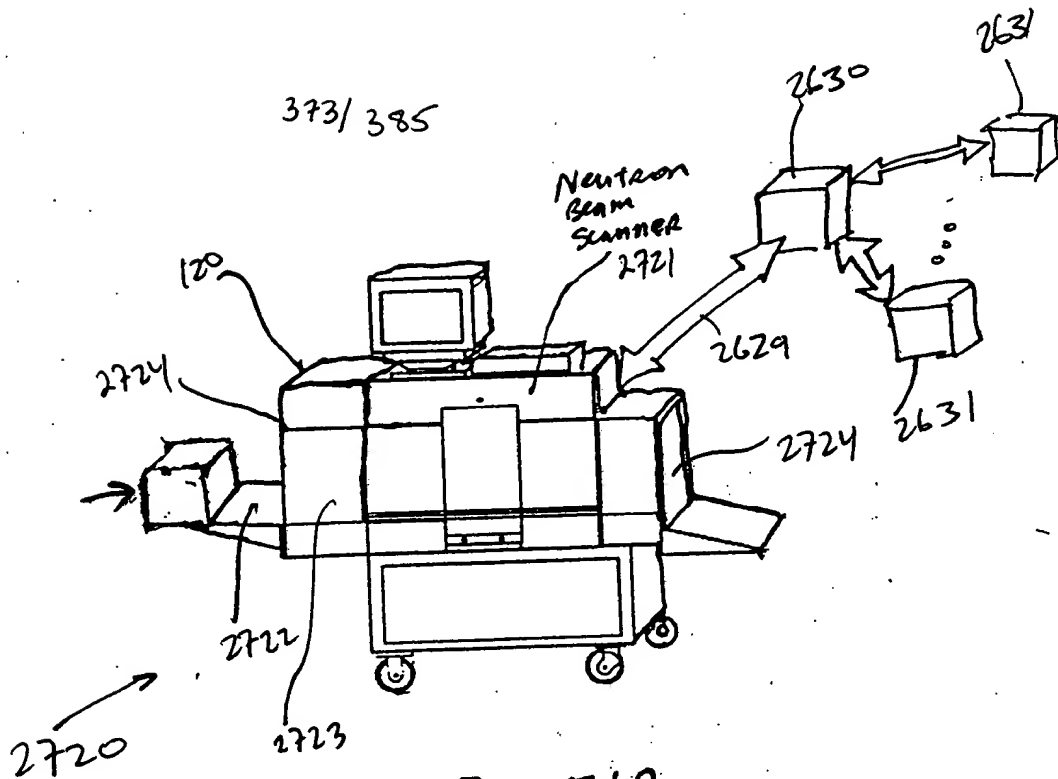


FIG. 7A

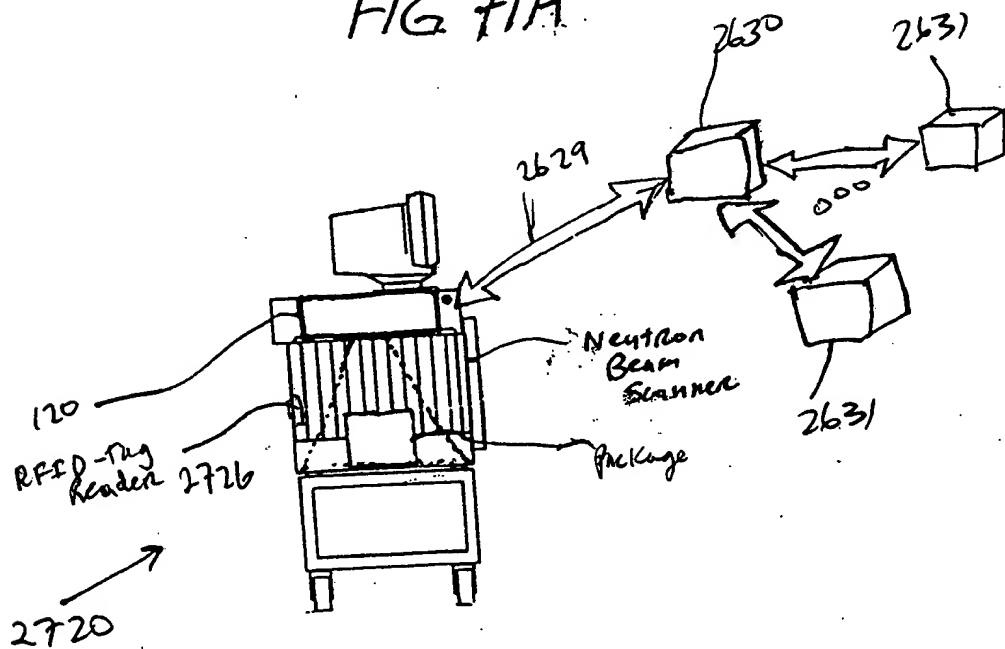


FIG. 7B

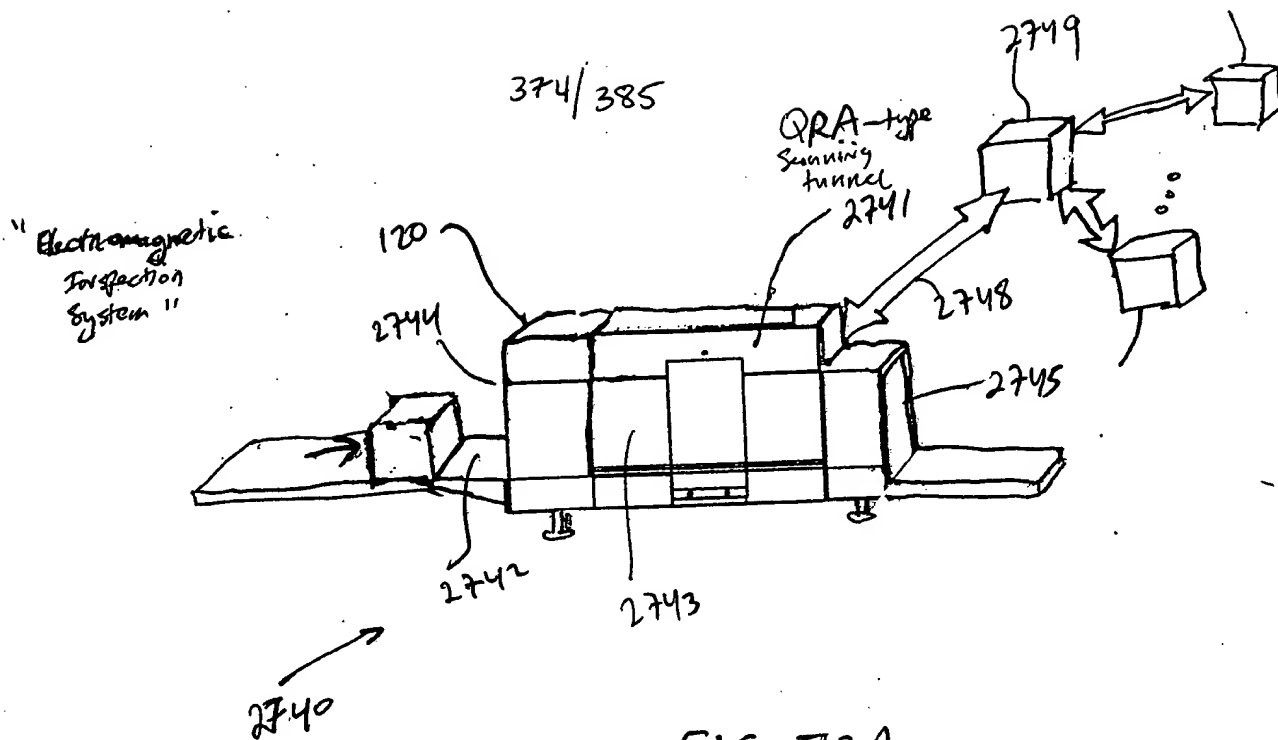


FIG. 72A

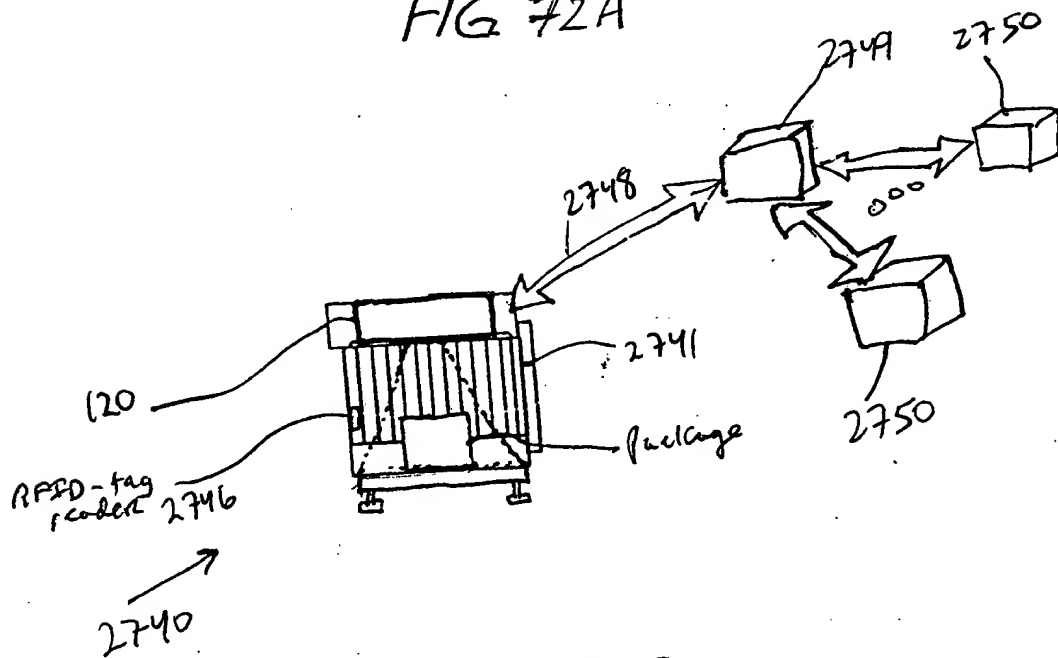
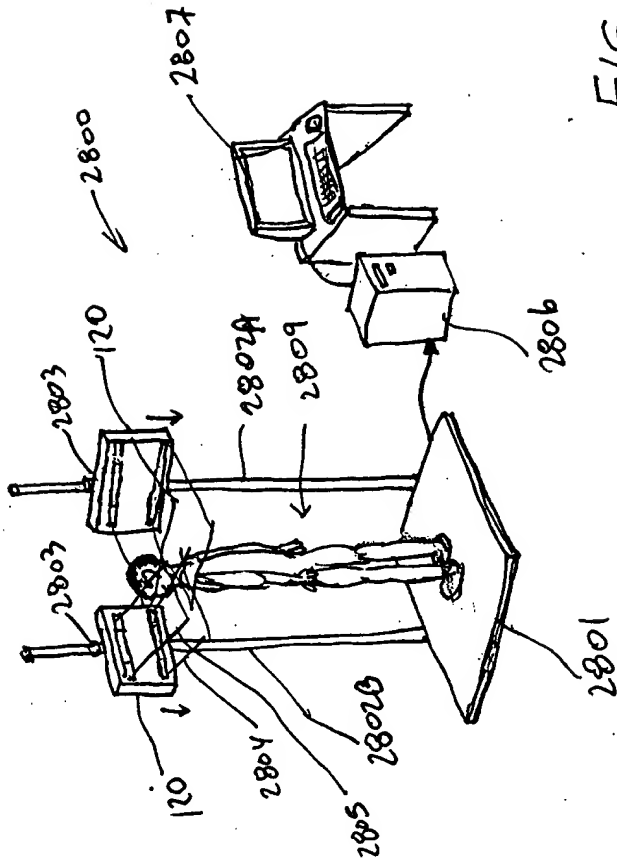
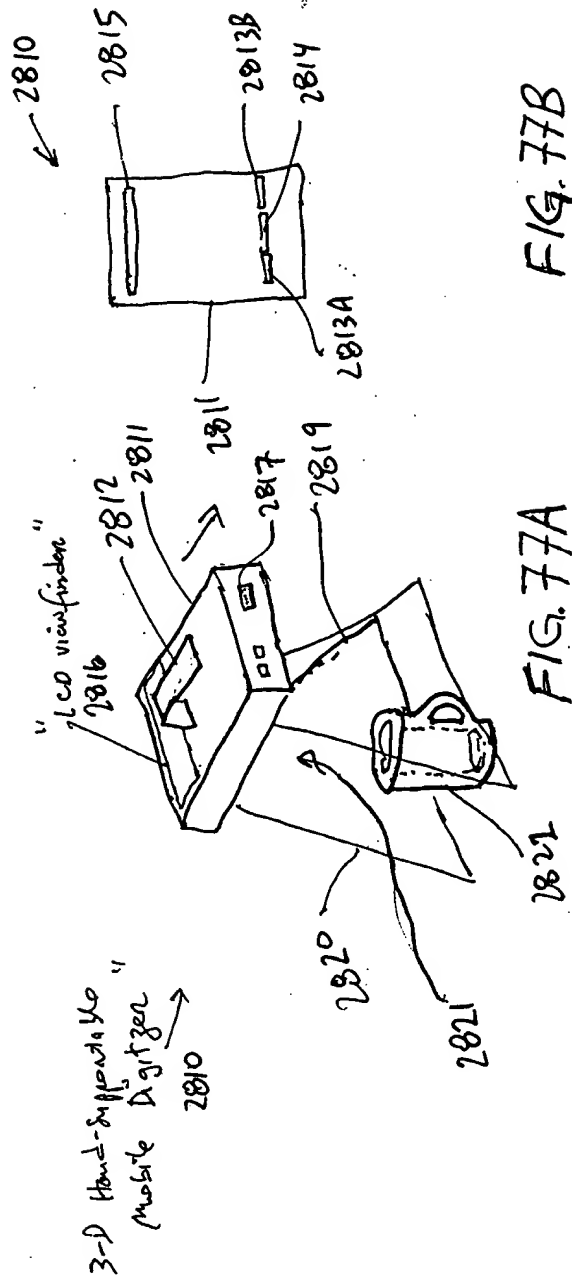
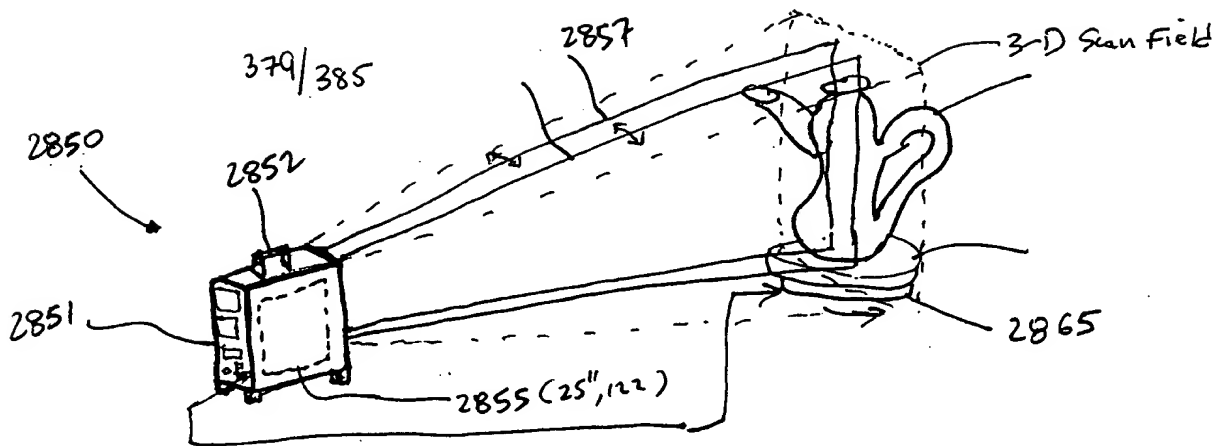


FIG. 72B

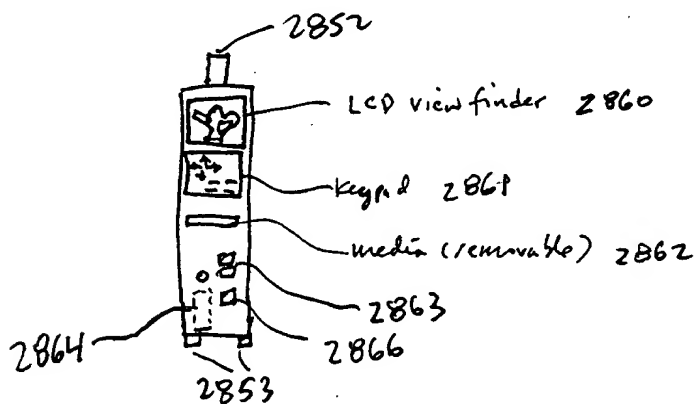
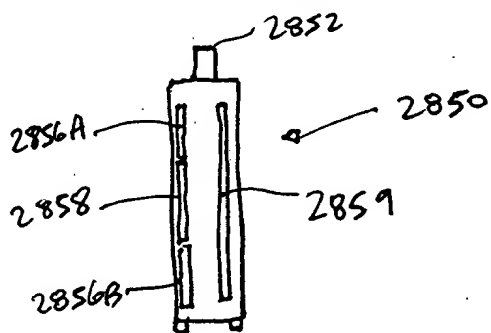


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Z-D(Area) sensor



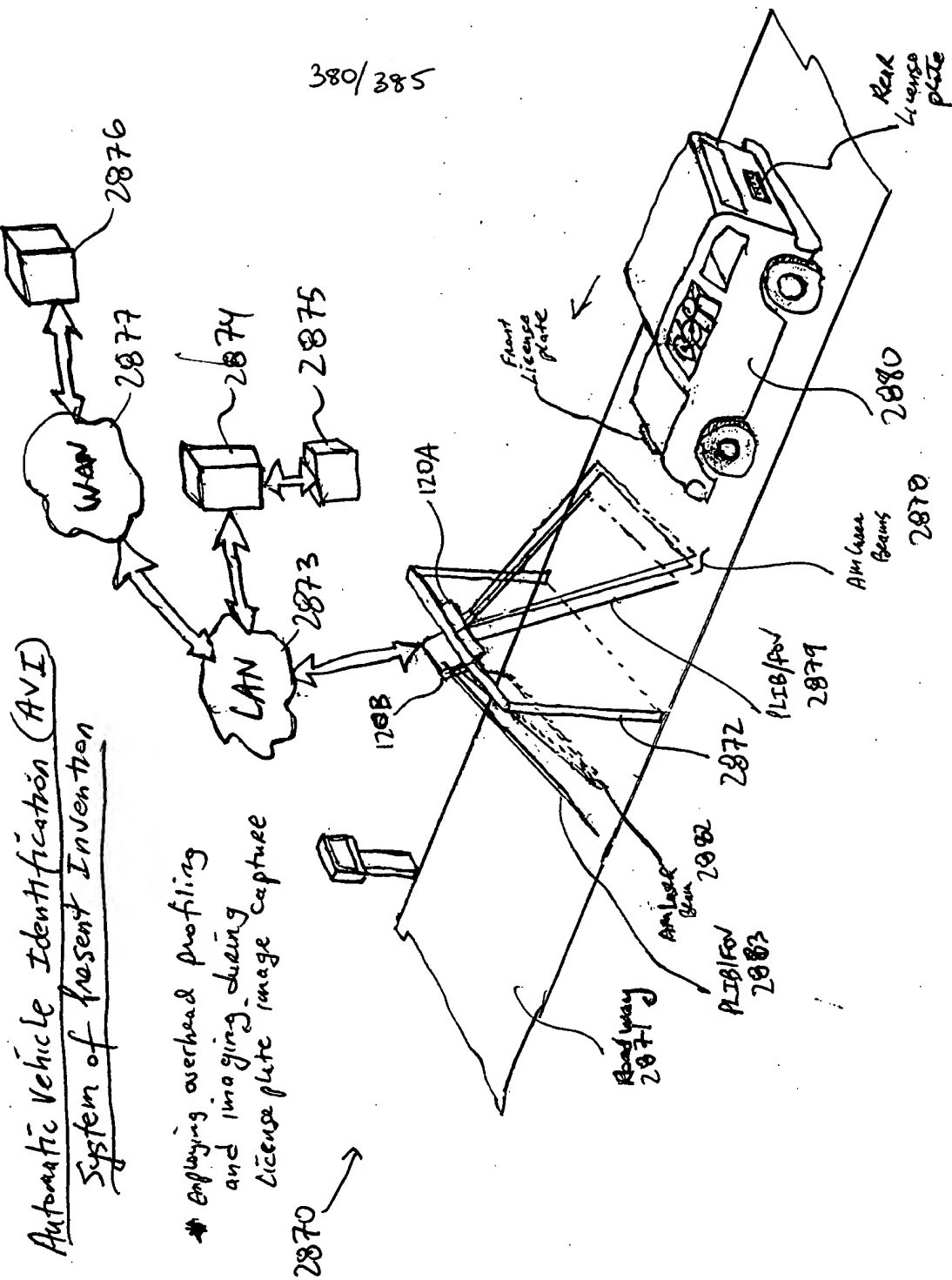


FIG. 80

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Automatic Vehicle Identification (AVI) System of Present Invention

* Employing overhead profiling
and imaging techniques during
license plate image capture

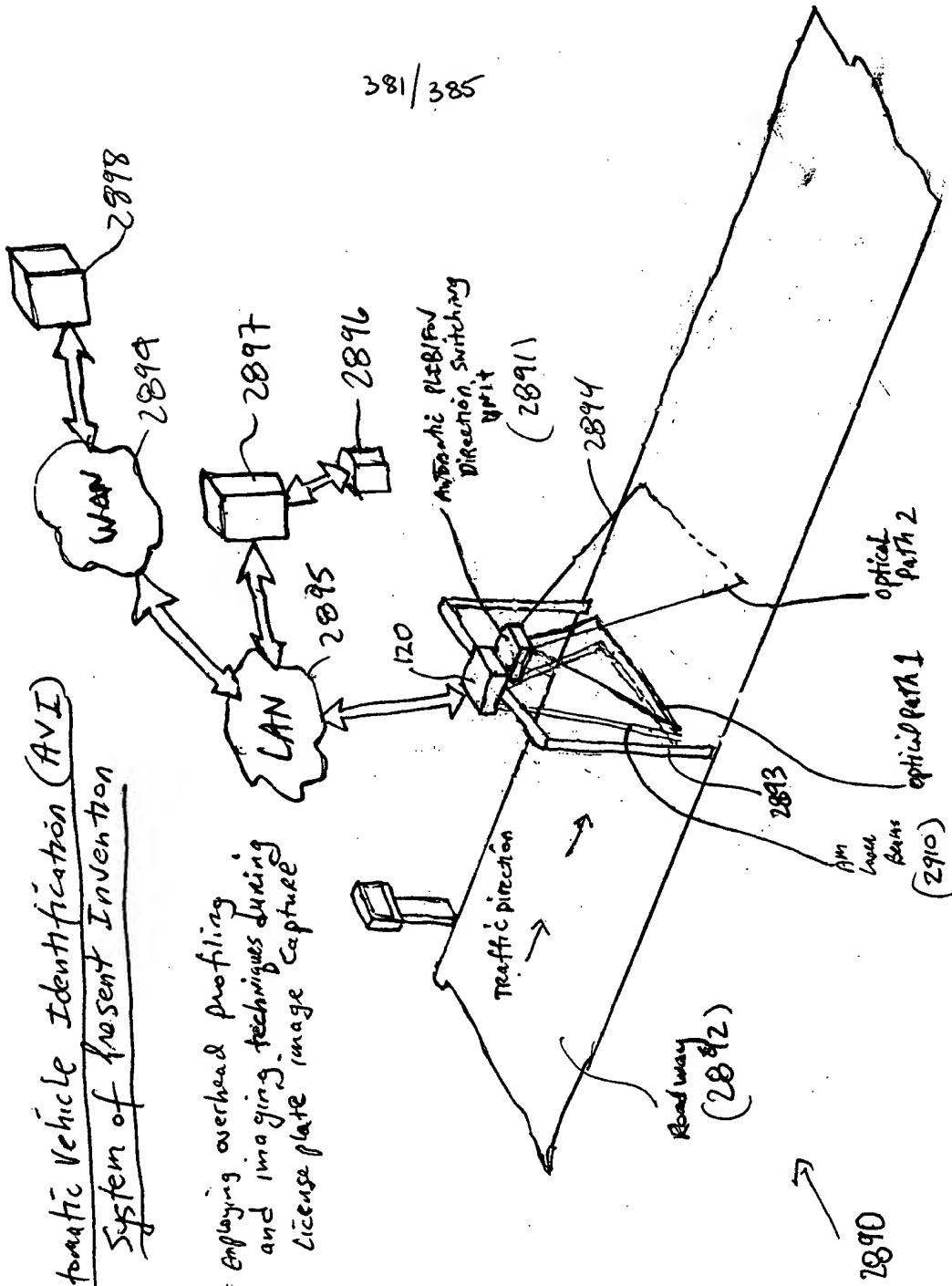


FIG. 81A

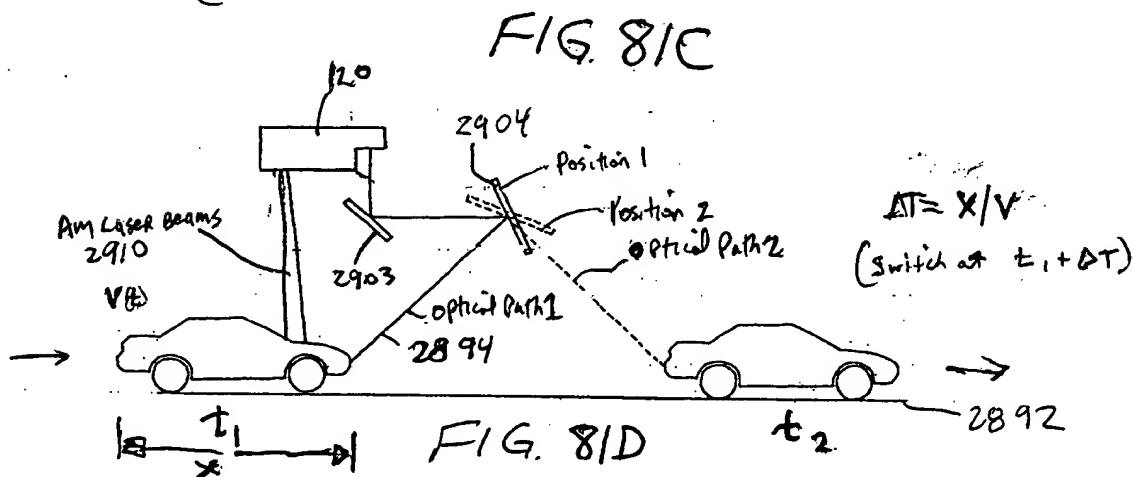
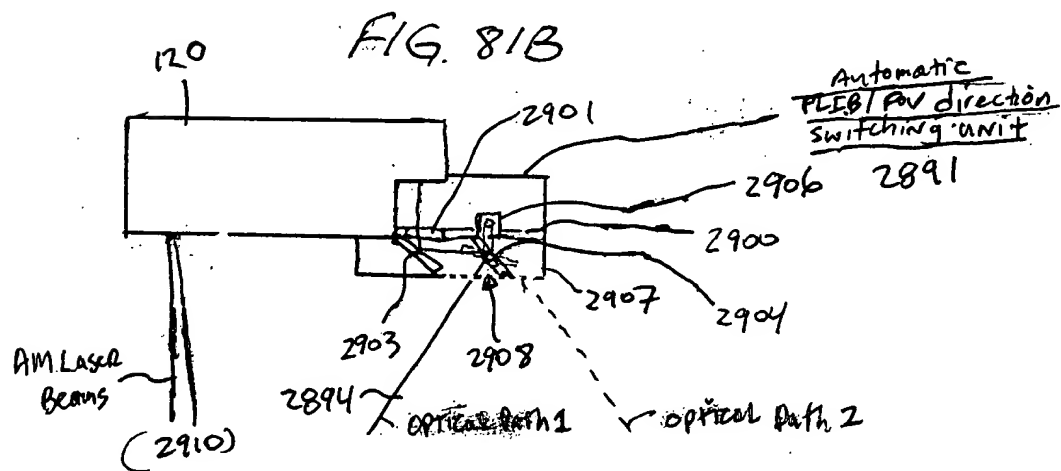
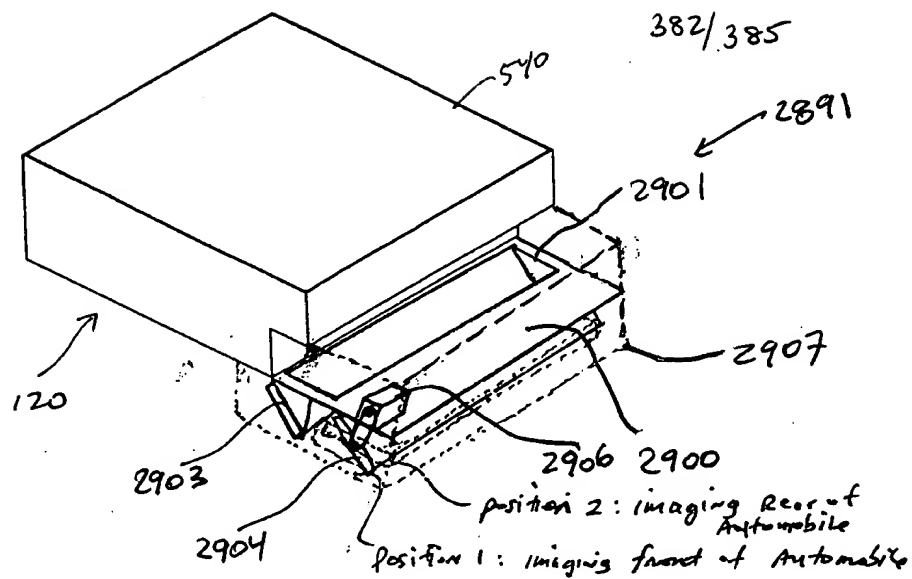
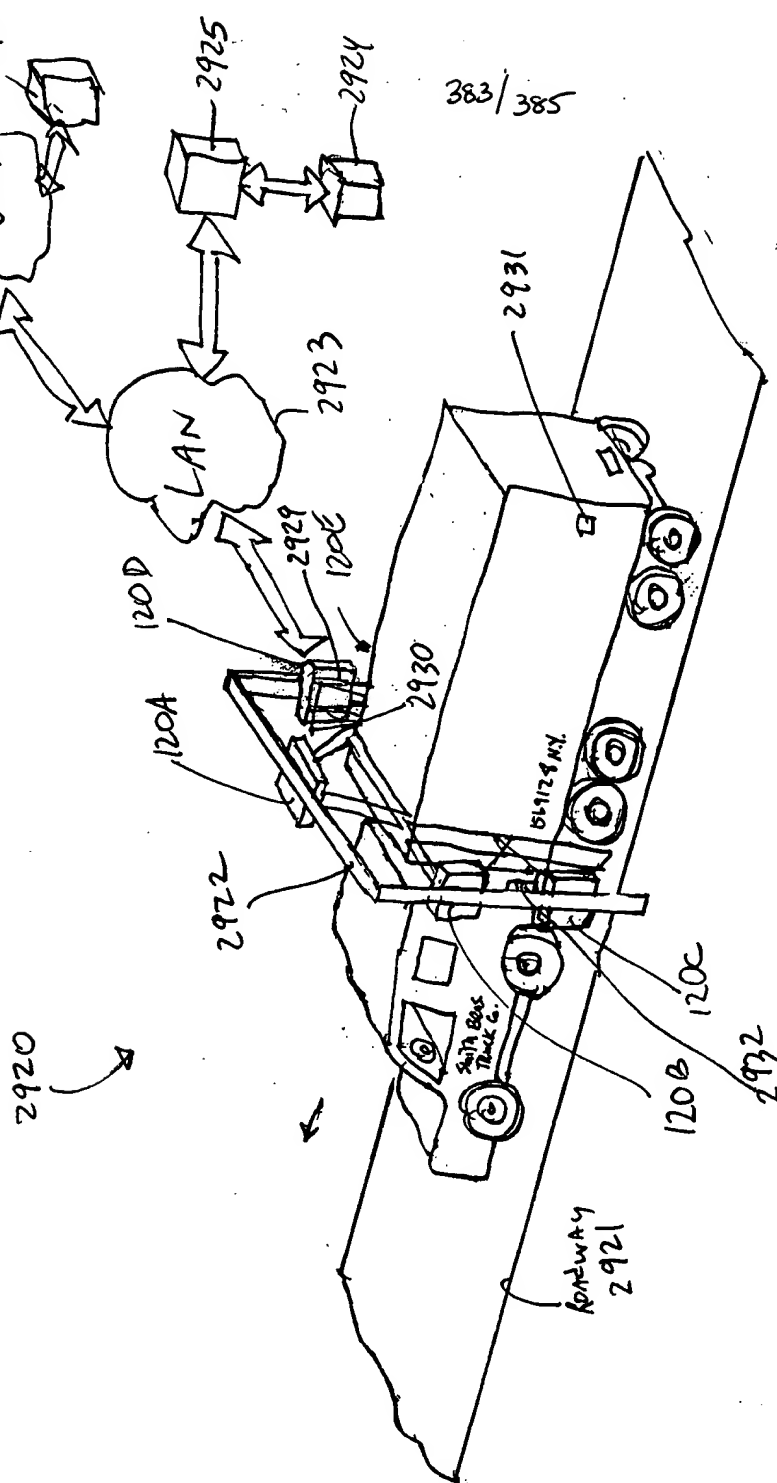


FIG. 8D

Automatic Vehicle Classification (AVC)
System of the present Invention



Employing overhead and lateral
 Profiling and imaging
 Techniques

FIG. 82

Year	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100
1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	

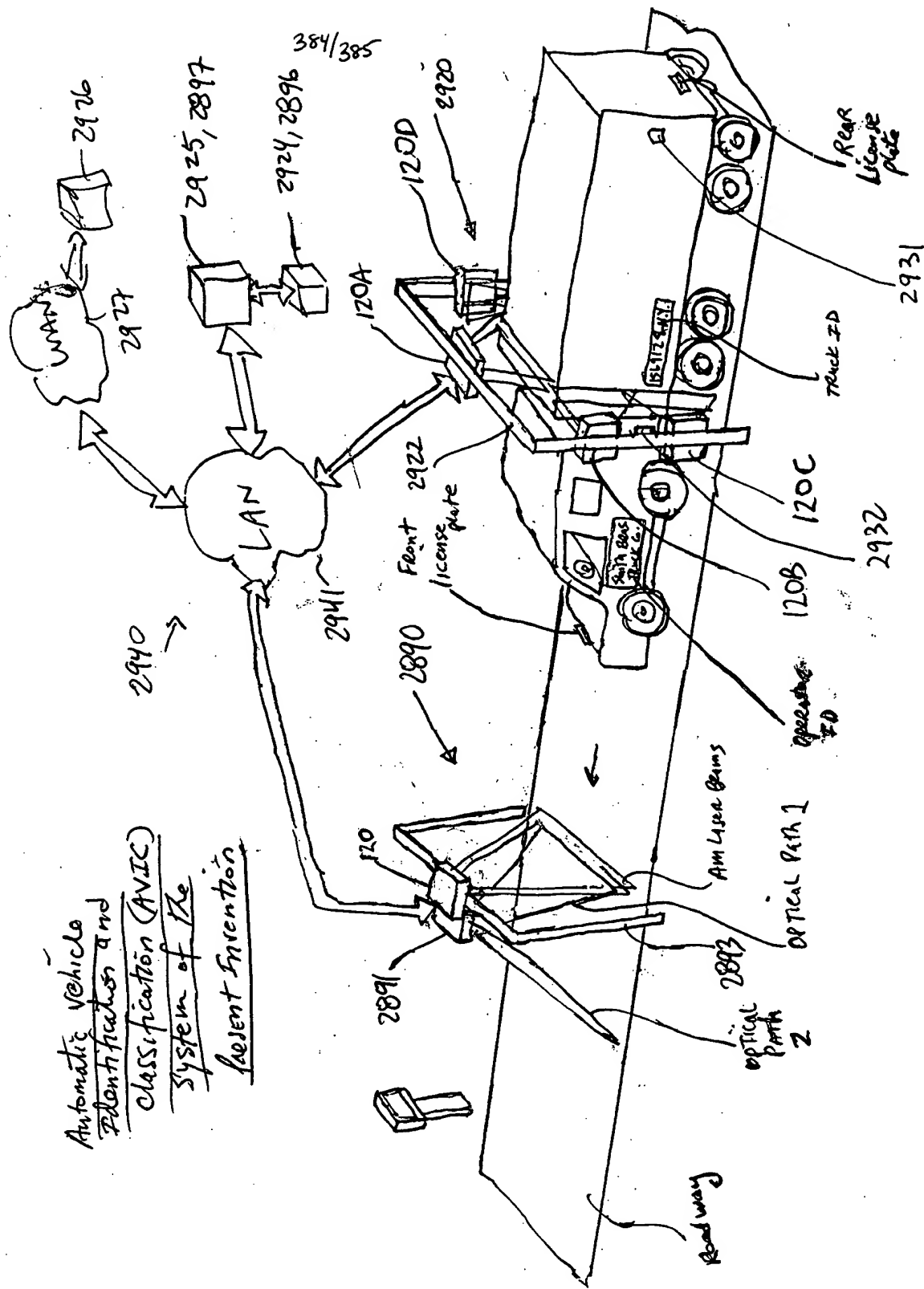


FIG. 83

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